



Allen-Bradley

PowerFlex[®] **700S**

High Performance AC Drive

Phase II Control

Firmware Versions

1.xx - 4.001

User Manual

Rockwell
Automation

Important User Information

Solid state equipment has operational characteristics differing from those of electromechanical equipment. *Safety Guidelines for the Application, Installation and Maintenance of Solid State Controls* (Publication SGI-1.1 available from your local Rockwell Automation sales office or online at <http://www.rockwellautomation.com/literature>) describes some important differences between solid state equipment and hard-wired electromechanical devices. Because of this difference, and also because of the wide variety of uses for solid state equipment, all persons responsible for applying this equipment must satisfy themselves that each intended application of this equipment is acceptable.

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The examples and diagrams in this manual are included solely for illustrative purposes. Because of the many variables and requirements associated with any particular installation, Rockwell Automation, Inc. cannot assume responsibility or liability for actual use based on the examples and diagrams.

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Throughout this manual, when necessary we use notes to make you aware of safety considerations.



WARNING: Identifies information about practices or circumstances that can cause an explosion in a hazardous environment, which may lead to personal injury or death, property damage, or economic loss.

Important: Identifies information that is critical for successful application and understanding of the product.



ATTENTION: Identifies information about practices or circumstances that can lead to personal injury or death, property damage, or economic loss. Attentions help you:

- identify a hazard
 - avoid the hazard
 - recognize the consequences
-



Shock Hazard labels may be located on or inside the equipment (e.g., drive or motor) to alert people that dangerous voltage may be present.



Burn Hazard labels may be located on or inside the equipment (e.g., drive or motor) to alert people that surfaces may be at dangerous temperatures.

Manual Updates

This information summarizes the changes to the *PowerFlex 700S High Performance AC Drive - Phase II Control User Manual*, publication 20D-UM006, since the August 2006 release.

| Change | See Page... |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------|
| Updated the "Important" information regarding the use of an Auxiliary Power Supply with Voltage Feedback boards on drives manufactured before June 2006. | |
| The following new parameters were added for firmware versions 4.001: | 3-1-3-114 |
| <div> <div>459 [IdsCompCoeff Mot]</div> <div>592 [VqsReg On Hyst]</div> <div>1166 [EGR Pos Preset]</div> </div> <div> <div>460 [IdsCompCoeff Reg]</div> <div>593 [SlipReg On Hyst]</div> <div>1170 [MC Generic 1]</div> </div> <div> <div>461 [SlipReg Off Lqs]</div> <div>1124 [Home Actual Pos]</div> <div>1171 [MC Generic 2]</div> </div> <div> <div>462 [VqsReg Off Freq]</div> <div>1155 [Heidn VM Pos Ref]</div> <div>1172 [MC Generic 3]</div> </div> <div> <div>544 [External DB Res]</div> <div>1156 [Heidn VM Enc PPR]</div> <div>1173 [MC Generic 4]</div> </div> <div> <div>586 [IdsCmd Slew Rate]</div> <div>1160 [VirtEncPositFast]</div> <div>1174 [MC Generic 5]</div> </div> <div> <div>587 [SlipReg Err Lmt]</div> <div>1161 [EGR Config]</div> <div>1175 [MC Generic 6]</div> </div> <div> <div>588 [VqsReg Err Lmt]</div> <div>1162 [EGR Mul]</div> <div>1176 [MC Generic 7]</div> </div> <div> <div>589 [Err Count Lmt]</div> <div>1163 [EGR Div]</div> <div>1177 [MC Generic 8]</div> </div> <div> <div>590 [RsTempCoefAdjust]</div> <div>1164 [EGR Pos Input]</div> <div>1178 [MC Generic 9]</div> </div> <div> <div>591 [RsTmpCoefAdjstEn]</div> <div>1165 [EGR Pos Output]</div> <div>1179 [MC Generic 10]</div> </div> | |
| The following parameters were updated for firmware version 4.001: | 3-1-3-114 |
| <div> <div>153 [Control Options]</div> <div>512 [PMag Mode Config]</div> <div>826 [Dig In2 Sel]</div> </div> <div> <div>156 [Start Inhibits]</div> <div>515 [FVC Tune Config]</div> <div>827 [Dig In3 Sel]</div> </div> <div> <div>161 [Logic TP Sel]</div> <div>533 [SlewRateTimeLmt]</div> <div>828 [Dig In4 Sel]</div> </div> <div> <div>263 [Heidenhain0 Cnfg]</div> <div>553 [Slip Slew Rate]</div> <div>829 [Dig In5 Sel]</div> </div> <div> <div>264 [Heidenhain0 Stat]</div> <div>701 [FdbkAxis FdbkSel]</div> <div>830 [Dig In6 Sel]</div> </div> <div> <div>266 [Heidn Encdr Type]</div> <div>788 [Xsync In 1]</div> <div>1000 [UserFunct Enable]</div> </div> <div> <div>267 [Heidn Encdr PPR]</div> <div>789 [Xsync Out 1]</div> <div>1122 [Home Speed]</div> </div> <div> <div>277 [Reslvr0 Type Sel]</div> <div>790 [Xsync In 2]</div> <div>1123 [Home Position]</div> </div> <div> <div>314 [VPL Firmware Rev]</div> <div>791 [Xsync Out 2]</div> <div>1136 [PPMP Rev Spd Lim]</div> </div> <div> <div>357 [Curr Ref TP Sel]</div> <div>792 [Xsync Out 2 Dly]</div> <div>1137 [PPMP Fwd Spd Lim]</div> </div> <div> <div>360 [Min Flux]</div> <div>793 [Xsync In 3]</div> <div>1138 [PPMP Over Ride]</div> </div> <div> <div>457 [MC Firmware Rev]</div> <div>794 [Xsync Out 3]</div> <div>1145 [PPMP TP Select]</div> </div> <div> <div>466 [MC TP1 Select]</div> <div>795 [Xsync Out 3 Dly]</div> </div> <div> <div>510 [FVC Mode Config]</div> <div>825 [Dig In1 Sel]</div> </div> | |
| Added the "Electronic Gear Ratio" Group to the User Function file. | 3-14 |
| Added required encoder PPR rating values | A-4 |
| Updated the "Inputs & Outputs - Digital" block diagram to reflect new values | B-11 |
| Added the new "Virtual Master Encoder" block diagram | B-19 |
| Updated the "User Functions 2" block diagram | B-21 |
| Updated parameter names in the "Inverter Overload IT" block diagram | B-25 |
| Added an "Application Note" regarding Motor Overload Memory Retention | C-6 |

This information summarizes the changes to the *PowerFlex 700S High Performance AC Drive - Phase II Control User Manual*, publication 20D-UM006, since the March 2006 release.

| Change | See Page... |
|-------------------------------------------------------------------------|---------------------------|
| Updated the Catalog Number Explanation | Preface-5 |
| Added a note for Frame 6 power terminals connections | 1-12 |
| Added a note to indicate that the Analog Inputs are not isolated | 1-22 |
| Added maximum value calculation for Par 81 [Spd Reg P Gain] | 3-19 |
| Added note referencing "Cable Tuning Tests" to Par 268 [Resolver0 Cnfg] | 3-42 |

| Change | See Page... |
|----------------------------------------------------------------------------------------------|--------------------------------------------------------------------|
| Added bit 14 to Pars 322 [Exception Event3], 325 [Fault Status 3], and 328 [Alarm Status 3] | 3-48 , 3-49 , 3-49 |
| Added a note for value 1 "FOC 2" for Par 485 [Motor Ctrl Mode] | 3-70 |
| Updated Par 796 [Posit Gear Ratio] to be linkable | 3-94 |
| Updated the description for options 34 "UserGen Sel0" - 37 "UserGen Sel3" for Pars 825 - 830 | 3-97 |
| Added a list of parameters corresponding to the value selected in Par 831 [Anlg Out1 Sel] | 3-98 |
| Updated the description for Par 1022 [Sel Switch Ctrl] | 3-106 |
| Added new fault code 79 "HiHP Bus Data" | 4-11 |
| Updated the Bus Overvoltage Trip levels | A-1 |
| Added information on DPI device limitations | A-6 |
| Update the "Drive, Fuse & Circuit Breaker Ratings" tables | A-7 |
| Updated the DriveLogix - Motion Control Block Diagram | B-28 |
| Updated wiring diagram for Rotary Encoder connections | F-4 , H-4 |
| Added new Appendix for SynchLink Specifications | K-1 |

This information summarizes the changes to the *PowerFlex 700S High Performance AC Drive - Phase II Control User Manual*, publication 20D-UM006, since the September 2005 release.

| Change | See Page... |
|--------------------------------------------------------------------------------------------------------------------------------------|-----------------------|
| Updated the Power Terminal Block Specification Descriptions | 1-12 |
| Updated the Terminal Block specifications for digital input leakage current | 1-23 |
| Updated the HIM Start Up Menu diagram | 2-7 |
| Updated the Min./Max. values for parameter 75 [Rev Speed Limit] | 3-18 |
| Updated the Min./Max. values for parameter 76 [Fwd Speed Limit] | 3-18 |
| Added values 9 and 10 to parameter 150 [Logic State Mach] | 3-24 |
| Added value 8 to parameter 165 [Tune Test Status] | 3-29 |
| Updated the trigger Source settings for parameter 236 [RegisLch 0/1 Cnfg] | 3-35 |
| Changed parameter 321 [Exception Event2] / bit 14 to a non-configurable alarm | 3-48 |
| Changed parameter 322 [Exception Event3] / bit 11, 12, 13, 21 and 28 to a non-configurable alarms | 3-48 |
| Changed parameter 324 [Fault Status 2] / bit 14 to a non-configurable alarm | 3-48 |
| Changed parameter 325 [Fault Status 3] / bit 21 to Drive Homing" and bit 28 to "+/- 12v Pwr" | 3-49 |
| Changed parameter 327 [Alarm Status 2] / bit 14 to a non-configurable alarm | 3-49 |
| Changed parameter 328 [Alarm Status 3] / bit 21 to Drive Homing" and bit 28 to "+/- 12v Pwr" | 3-49 |
| Added values 45, 46 and 47 to parameter 347 [Drive OL TP Sel] | 3-53 |
| Added values 20 - 52 to parameter 357 [Curr Ref TP Sel] | 3-54 |
| Changed bit 3 to "FastFluxDsbl" for parameter 510 [FVC Mode Config] | 3-72 |
| Changed bit 3 to "FastFluxDsbl" for parameter 513 [V/Hz Mode Config] | 3-73 |
| Updated the default and Min./Max. values for parameter 532 [Maximum Frequency] | 3-76 |
| Change bit 18 to "Vqs Reg Act" for parameter 555 [MC Status] | 3-78 |
| Added bit 9 "Watch Fb Arm" and bit 10 "WatchFbPosit" to parameter 691 [Motn EventStatus] | 3-84 |
| Added bit 7 "Watch Fb Rev" to parameter 692 [Motn Event Ctrl] | 3-84 |
| Updated Parameter 554 [LED Status] to include a description | 3-77 |
| Updated the description for bit 7 "AbsoluteMode" of parameter 740 [Position Control] | 3-89 |
| Updated the description for bit 0 "Absolute" of parameter 1134 [PPMP Control] | 3-113 |
| Updated fault 33 "+/- 15volt Power" to new voltage band settings | 4-8 |
| Added new event 86 "Drive Homing" | 4-11 |
| Added new event 93 "+/- 12volt Power Alarm" | 4-11 |
| Updated the Specifications table for C-tick Agency Certification, drive sound levels, and encoder voltage supply data. | A-1 |
| Updated the Drive, Fuse & Circuit Breaker Ratings tables. | A-7 |
| Updated wiring diagram for Rotary Encoder connections. | H-4 |
| Added new Appendix for ATEX approved PowerFlex 700S Phase II Drives in Group II Category (2) applications with ATEX approved motors. | J-1 |

This information summarizes the changes to the *PowerFlex 700S High Performance AC Drive - Phase II Control User Manual*, publication 20D-UM006, since the August 2005 release.

| Change | | | | See Page... | |
|---------------------------------------------------------------------|------------------------------------|------|-------------------------------------|---------------------------|------------------------------------|
| The following new parameters were added for firmware versions 3.01: | | | | 3-1-3-114 | |
| 49 | [Selected SpdRefA] | 732 | [PLL Posit OutAdv] | 1114 | [DelTmr2 Trig Bit] |
| 50 | [Selected SpdRefB] | 733 | [PLL FiltPositOut] | 1115 | [DelayTimer2PrSet] |
| 54 | [Inertia TrgLpfBW] | 734 | [PLL Speed Out] | 1116 | [DelayTimer2Accum] |
| 119 | [SLAT ErrorSetpnt] | 735 | [PLL SpeedOut Adv] | 1117 | [DelayTimer2Stats] |
| 120 | [SLAT Dwell Time] | 848 | [Dig Out1 On Time] | 1120 | [Home Accel Time] |
| 341 | [Mtr I2T Count] | 849 | [Dig Out1 OffTime] | 1121 | [Home Decel Time] |
| 368 | [Cnv NotLogin Cfg] | 853 | [Dig Out2 On Time] | 1122 | [Home Speed] |
| 533 | [SlewRateTimeLimt] | 854 | [Dig Out2 OffTime] | 1123 | [Home Position] |
| 551 | [CurrFdbk AdjTime] | 858 | [Rly Out3 On Time] | 1125 | [DC Brake Level] |
| 552 | [Slip Preload Val] | 859 | [Rly Out3 OffTime] | 1126 | [DC Brake Time] |
| 553 | [Slip Slew Rate] | 1093 | [Anlg In1LossCnfg] | 1130 | [PPMP Pos Command] |
| 554 | [LED Status] | 1094 | [Anlg In2LossCnfg] | 1131 | [PPMP Pos Mul] |
| 669 | [Write Mask] | 1095 | [Anlg In3LossCnfg] | 1132 | [PPMP Pos Div] |
| 712 | [Write Mask Act] | 1096 | [AddSub 1 Input] | 1133 | [PPMP Scaled Cmd] |
| 713 | [Logic Mask Act] | 1097 | [AddSub 1 Add] | 1134 | [PPMP Control] |
| 714 | [Port Mask Act] | 1098 | [AddSub 1 Subtrct] | 1135 | [PPMP Status] |
| 717 | [PLL TP Select] | 1099 | [AddSub 1 Result] | 1136 | [PPMP Rev Spd Lim] |
| 718 | [PLL TP DataDInt] | 1100 | [AddSub 2 Input] | 1137 | [PPMP Fwd Spd Lim] |
| 719 | [PLL TP DataReal] | 1101 | [AddSub 2 Add] | 1138 | [PPMP Over Ride] |
| 720 | [PLL Control] | 1102 | [AddSub 2 Subtrct] | 1139 | [PPMP Accel Time] |
| 721 | [PLL Position Ref] | 1103 | [AddSub 2 Result] | 1140 | [PPMP Decel Time] |
| 722 | [PLL BandWidth] | 1104 | [AddSub 3 Input] | 1141 | [PPMP SCurve Time] |
| 723 | [PLL Rev Input] | 1105 | [AddSub 3 Add] | 1142 | [PPMP Spd Output] |
| 724 | [PLL Rev Output] | 1106 | [AddSub 3 Subtrct] | 1143 | [PPMP Pos Output] |
| 725 | [PLL EPR Input] | 1107 | [AddSub 3 Result] | 1144 | [PPMP Pos To Go] |
| 726 | [PLL EPR Output] | 1108 | [DelTmr1 TrigData] | 1145 | [PPMP TP Select] |
| 727 | [PLL VirtEncdrRPM] | 1109 | [DelTmr1 Trig Bit] | 1146 | [PPMP TP DataDInt] |
| 728 | [PLL Ext Spd Ref] | 1110 | [DelayTimer1 PrSet] | 1147 | [PPMP TP DataReal] |
| 729 | [PLL Ext SpdScale] | 1111 | [DelayTimer1 Accum] | 1150 | [DInt2Real2 In] |
| 730 | [PLL LPFilter BW] | 1112 | [DelayTimer1 Stats] | 1151 | [DInt2Real2 Scale] |
| 731 | [PLL Posit Out] | 1113 | [DelTmr2 TrigData] | 1152 | [DInt2Real2Result] |

| Change | | | See Page... |
|---------------------------------------------------------------------|----------------------------------------|-----------------------------------------|-------------------------------------------|
| The following parameters were updated for firmware version 3.01: | | | 3-1-3-114 |
| 81 [Spd_Reg_P_Gain] | 370 [HiHp_InPhsLs_Cfg] | 825 [Dig_In1_Sel] | |
| 84 [SpdReg_AntiBckup] | 412 [Power_EE_TP_Sel] | 826 [Dig_In2_Sel] | |
| 92 [SpdReg_P_Gain_Mx] | 414 [Brake/Bus_Cnfg] | 827 [Dig_In3_Sel] | |
| 110 [Speed/TorqueMode] | 416 [Brake_PulseWatts] | 828 [Dig_In4_Sel] | |
| 132 [Inert_Adapt_Sel] | 417 [Brake_Watts] | 829 [Dig_In5_Sel] | |
| 147 [FW_Functions_En] | 420 [Pwr_Strct_Mode] | 830 [Dig_In6_Sel] | |
| 149 [FW_FunctionsActl] | 465 [MC_Diag_Error_3] | 904 [SL_Node_Cnfg] | |
| 150 [Logic_State_Mach] | 466 [MC_TP1_Select] | 905 [SL_Rx_CommFormat] | |
| 153 [Control_Options] | 475 [MC_FaultTPSelect] | 906 [SL_Rx_DirectSel0] | |
| 157 [Logic_Ctrl_State] | 486 [Rated_Slip_Freq] | 907 [SL_Rx_DirectSel1] | |
| 165 [Tune_Test_Status] | 490 [StatorInductance] | 908 [SL_Rx_DirectSel2] | |
| 222 [Mtr_Fdbk_Sel_Pri] | 510 [FVC_Mode_Config] | 909 [SL_Rx_DirectSel3] | |
| 223 [Mtr_Fdbk_Sel_Alt] | 511 [FVC2_Mode_Config] | 910 [SL_Tx_Comm_Format] | |
| 224 [TachSwitch_Level] | 512 [PMag_Mode_Config] | 911 [SL_Tx_DirectSel0] | |
| 259 [Stegmann0_Cnfg] | 514 [Test_Mode_Config] | 912 [SL_Tx_DirectSel1] | |
| 263 [Heidenhain0_Cnfg] | 549 [Vuv_Fdbk_Offset] | 913 [SL_Tx_DirectSel2] | |
| 264 [Heidenhain0_Stat] | 550 [Vvw_Fdbk_Offset] | 914 [SL_Tx_DirectSel3] | |
| 266 [Heidn_Encdr_Type] | 740 [Position_Control] | 1000 [UserFunct_Enable] | |
| 306 [DC_Bus_Voltage] | 741 [Position_Status] | 1047 [DInt2Real1_In] | |
| 322 [Exception_Event3] | 742 [Position_Ref_Sel] | 1048 [DInt2Real1_Scale] | |
| 325 [Fault_Status_3] | 777 [PositionFdbk_Sel] | 1049 [DInt2Real1Result] | |
| 328 [Alarm_Status_3] | 796 [Posit_Gear_Ratio] | | |
| The following new fault codes were added for firmware version 3.01: | | | 4-5 |
| 76 HiHP_HardwareVer | 78 HiHP_VoltUnblnce | 95 Analog_In_2_Loss | |
| 77 HiHP_CurrUnblnce | 94 Analog_In_1_Loss | 96 Analog_In_3_Loss | |
| Encoder specifications updated | | | A-1 & A-7 |
| Updated and new Control Block Diagrams | | | B-1 |

This information summarizes the changes to the *PowerFlex 700S High Performance AC Drive - Phase II Control User Manual*, publication 20D-UM006 since the August 2004 release.

| Change | See Page... |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------|
| URL for Rockwell Automation Technical Support added | Preface-2 |
| Catalog Number Explanation updated | Preface-5 |
| DIP Switch Settings table updated | 1-29 |
| The following new parameters were added for firmware versions 2.03 and 2.04: | 3-1-3-114 |
| <ul style="list-style-type: none"> • 42 [Jerk] 332 [700L_EventStatus] 483 [VPL Mem Link Int] • 98 [Slip RPM @ FLA] 333 [700L FaultStatus] 484 [VPL Mem Link Flt] • 99 [Slip Comp Gain] 334 [700L AlarmStatus] 513 [V/Hz Mode Config] • 107 [Slip RPM Meter] 362 [Current Limit Gain] 527 [Start/Acc Boost] • 136 [Skip Speed 1] 363 [Ki Current Limit] 528 [Run Boost] • 137 [Skip Speed 2] 364 [Kd Current Limit] 529 [Break Voltage] • 138 [Skip Speed 3] 471 [Estimated Torque] 530 [Break Frequency] • 139 [Skip Speed Band] 473 [MC TP2 Select] 531 [Maximum Voltage] • 170 [Flying StartGain] 474 [MC TP2 Value] 532 [Maximum Freq] • 263 [Heidenhain0 Cnfg] 475 [MC FaultTPSelect] 541 [SrLss Angl Comp] • 264 [Heidenhain0 Stat] 476 [MC FaultTP Value] 542 [SrLss Volt Comp] • 265 [Heidn Mkr Offset] 478 [VPL Mem Password] 545 [Bus Reg Ki] • 266 [Heidn Encdr Type] 479 [VPL Mem Address] 546 [Bus Reg Kp] • 267 [Heidn Encdr PPR] 480 [VPL Mem Data Int] 547 [Bus Reg Kd] • 285 [Linear1 Config] 481 [VPL Mem Data Flt] 548 [Bus Reg ACR Kp] • 296 [Motor Freq Ref] 482 [VPL Mem Data Bit] | |
| The following parameters were updated for firmware versions 2.03 and 2.04: | |
| <ul style="list-style-type: none"> • 153 [Control Options] 347 [Drive OL TP Sel] 830 [Dig In6 Sel] • 245 [Spd Fdbk TP Sel] 466 [MC TP1 Select] 905 [SL Rx CommFormat] • 266 [Heidn Encdr Type] 787 [Xsync Gen Period] 906 [SL Rx DirectSel0] • 268 [Resolver0 Cnfg] 825 [Dig In1 Sel] 907 [SL Rx DirectSel1] • 272 [Reslvr0 SpdRatio] 826 [Dig In2 Sel] 908 [SL Rx DirectSel2] • 316 [SynchLink Status] 827 [Dig In3 Sel] 909 [SL Rx DirectSel2] • 322 [Exception Event3] 828 [Dig In4 Sel] 1000 [UserFunct Enable] • 328 [Alarm Status 3] 829 [Dig In5 Sel] | |
| Added new fault codes and descriptions/actions | 4-5 |
| Specifications Table and Recommended Protection Devices tables updated | A-1 & A-7 |
| Updated and New Control Block Diagrams | B-1 |
| Updated "HIM Overview" to include HIM menu chart and steps for viewing, editing and linking parameters using the HIM. | D-1 |
| Added new Appendix I - <i>PowerFlex 700S Permanent Magnet Motor Specifications</i> | I-1 |

Table of Contents

| | | |
|---------------------------|-----------------------------------------------------------------------------|------|
| | Important User Information | 1-2 |
| Summary of Changes | Manual Updates | i-1 |
| Preface | Overview | |
| | Who Should Use This Manual | P-1 |
| | What Is Not In This Manual | P-1 |
| | Recommended Documentation | P-1 |
| | Manual Conventions | P-3 |
| | Drive Frame Sizes | P-3 |
| | General Precautions | P-4 |
| | Class 1 LED Product | P-4 |
| | Catalog Number Explanation | P-5 |
| | Catalog Number Explanation, Cont'd | P-6 |
| Chapter 1 | Installation/Wiring | |
| | Chapter Objectives | 1-1 |
| | Opening the Cover | 1-2 |
| | Mounting Clearances | 1-3 |
| | Operating Temperatures | 1-3 |
| | AC Supply Source Considerations | 1-4 |
| | Unbalanced, Ungrounded or Resistive Grounded Distribution Systems | 1-4 |
| | Input Power Conditioning | 1-5 |
| | Grounding Requirements | 1-5 |
| | Recommended Grounding Scheme | 1-5 |
| | Shield Termination - SHLD | 1-6 |
| | RFI Filter Grounding | 1-6 |
| | Fuses and Circuit Breakers | 1-6 |
| | Power Wiring | 1-7 |
| | Power Cable Types Acceptable for 200-600 Volt Installations | 1-7 |
| | Motor Cable Lengths | 1-9 |
| | Power Terminal Blocks | 1-9 |
| | Cable Entry Plate Removal | 1-9 |
| | Power Wiring Access Panel Removal | 1-10 |
| | AC Input Phase Selection (Frames 5 & 6 Only) | 1-10 |
| | Cooling Fan Voltage | 1-10 |
| | Selecting/Verifying Fan Voltage (Frames 5 & 6 Only) | 1-10 |
| | Important Common Bus (DC Input) Application Notes | 1-12 |
| | Dynamic Brake Resistor Considerations | 1-15 |
| | Using Input/Output Contactors | 1-16 |
| | Using PowerFlex® 700S Drives with Regenerative Power Units | 1-16 |
| | Regenerative Unit to Drive Connections | 1-16 |
| | Disconnecting MOVs and Common Mode Capacitors | 1-17 |
| | I/O Wiring | 1-19 |
| | ATEX Approved Drives and Motors | 1-20 |
| | Wiring the Main Control Board I/O Terminals | 1-20 |
| | Auxiliary Power Supply (High Power Only) | 1-21 |
| | Hardware Enable Circuitry | 1-22 |
| | Main Control Board I/O Configuration Settings | 1-28 |

| | | |
|-------------------|----------------------------------------------------------|-------|
| | CE Conformity | 1-29 |
| | Low Voltage Directive (73/23/EEC) | 1-29 |
| | EMC Directive (89/336/EEC) | 1-30 |
| | General Notes | 1-30 |
| | Essential Requirements for CE Compliance | 1-30 |
| Chapter 2 | Start-Up | |
| | Prepare for Drive Start-Up | 2-1 |
| | Before Applying Power to the Drive | 2-1 |
| | Applying Power to the Drive | 2-3 |
| | Assisted Start-Up | 2-5 |
| Chapter 3 | Programming and Parameters | |
| | About Parameters | 3-1 |
| | How Parameters are Organized | 3-3 |
| | Parameter Data in Linear List Format | 3-15 |
| | Parameter Cross Reference By Name | 3-117 |
| Chapter 4 | Troubleshooting | |
| | Chapter Objectives | 4-1 |
| | Drive Status | 4-1 |
| | LED Indications | 4-2 |
| | Precharge Board LED Indications | 4-3 |
| | HIM Indication | 4-4 |
| | Manually Clearing Faults | 4-4 |
| | Faults and Alarms | 4-4 |
| | Fault/Alarm Descriptions | 4-5 |
| Appendix A | Supplemental Information | |
| | Chapter Objectives | A-1 |
| | Specifications | A-1 |
| | DPI Communication Configurations | A-5 |
| | Typical Programmable Controller Configurations | A-5 |
| | Logic Command Word | A-5 |
| | Logic Status Word | A-6 |
| | DPI Device Limitations | A-6 |
| | Output Devices | A-7 |
| | Drive, Fuse & Circuit Breaker Ratings | A-7 |
| | Fuse Size | A-7 |
| | Fuse Type | A-7 |

| | | |
|-------------------|----------------------------------------------------------------------------|------|
| | List of Motors with Compatible Thermistor Ratings | A-30 |
| | Auxiliary Power Supply | A-31 |
| | Drive Frame Size to HP/kW Ratings Cross Reference | A-31 |
| | Approximate Dimensions | A-33 |
| Appendix B | Control Block Diagrams | |
| | List of Control Block Diagrams | B-1 |
| | Diagram Conventions and Definitions | B-2 |
| Appendix C | Application Notes | |
| | Input Voltage Range/Tolerance | C-1 |
| | Motor Control Mode | C-2 |
| | Field Oriented Control | C-3 |
| | Permanent Magnet Control | C-4 |
| | Volts/Hertz Control - v2.003 and later | C-4 |
| | Motor Overload | C-5 |
| | Setting Parameter 338 [Mtr I2T Spd Min] | C-5 |
| | Motor Overload Memory Retention Per 2005 NEC | C-6 |
| | Stop Dwell Time | C-7 |
| | Setpt 1 Data | C-8 |
| | Setpt 2 Data | C-8 |
| Appendix D | HIM Overview | |
| | External and Internal Connections | D-1 |
| | LCD Display Elements | D-2 |
| | ALT Functions | D-2 |
| | Menu Structure | D-3 |
| | Viewing and Editing Parameters | D-5 |
| | LCD HIM | D-5 |
| | Numeric Keypad Shortcut | D-5 |
| | Linking Parameters | D-5 |
| | Establishing A Link | D-6 |
| | Removing/Installing the HIM | D-6 |
| Appendix E | PowerFlex 700S 2nd Encoder Feedback Option Card | |
| | Chapter Objectives | E-1 |
| | Specifications | E-1 |
| | 2nd Encoder Feedback Option Card Specifications | E-1 |
| | Wiring and Configuring the Second Encoder Option Card | E-2 |
| | Dip Switch Settings | E-3 |
| Appendix F | PowerFlex 700S Stegmann Hi-Resolution Encoder Feedback Option | |
| | Chapter Objectives | F-1 |
| | Specifications | F-1 |
| | Stegmann Hi-Resolution Feedback Option Card Specifications | F-1 |
| | Supported Encoders | F-1 |
| | Wiring the Stegmann Hi-Resolution Feedback Option Card to an Encoder | F-2 |
| | Recommended Cables | F-3 |

| | | |
|-------------------|---------------------------------------------------------------------------------------------------------------------------------------|-----|
| Appendix G | PowerFlex 700S Resolver Feedback Option Card | |
| | Chapter Objectives | G-1 |
| | Specifications | G-1 |
| | Resolver Feedback Option Card Specifications | G-1 |
| | Compatible Resolvers | G-1 |
| | Recommended Cable | G-2 |
| | Wiring the Resolver Feedback Option Card to a Resolver | G-3 |
| Appendix H | PowerFlex 700S Multi-Device Interface (MDI) Option Card | |
| | Specifications | H-1 |
| | MDI Option Card Specifications | H-1 |
| | Supported Linear Sensors | H-1 |
| | Supported Rotary Encoders | H-2 |
| | Recommended Cables | H-2 |
| | Wiring the MDI Option Card | H-3 |
| Appendix I | PowerFlex 700S Permanent Magnet Motor Specifications | |
| | Compatible Permanent Magnet Motors | I-1 |
| Appendix J | Instructions for ATEX Approved PowerFlex 700S, Phase II Drives in Group II Category (2) Applications with ATEX Approved Motors | |
| | General Information | J-1 |
| | Motor Requirements | J-1 |
| | Drive Wiring | J-2 |
| | Drive Hardware Configuration | J-4 |
| | Verify Operation | J-4 |
| Appendix K | SynchLink™ Board for PowerFlex® 700S Drives with Phase II Control | |
| | What is SynchLink? | K-1 |
| Index | | |

Overview

The purpose of this manual is to provide you with the basic information needed to install, start-up and troubleshoot the PowerFlex® 700S Adjustable Frequency AC Drive with Phase II Control.

| For information on ... | See page... |
|--------------------------------------------|---------------------------|
| Who Should Use This Manual | Preface-1 |
| What Is Not In This Manual | Preface-1 |
| Recommended Documentation | Preface-1 |
| Manual Conventions | Preface-3 |
| Drive Frame Sizes | Preface-3 |
| General Precautions | Preface-4 |
| Catalog Number Explanation | Preface-5 |

Who Should Use This Manual

This manual is intended for qualified personnel. You must be able to program and operate Adjustable Frequency AC Drive devices. In addition, you must have an understanding of the parameter settings and functions. You must also understand programmable controllers for the PowerFlex 700S with DriveLogix.

What Is Not In This Manual

Since this *User Manual* is designed to provide installation and wiring and basic start-up information for frames 1 - 6 only, the following topics have not been included:

- Spare Parts Information
- Installation and wiring and start-up instructions for frames 9 - 13

Please refer to the tables below for more information on recommended documentation.

Recommended Documentation

The following publications provide general drive information.

| Title | Publication | Available... |
|--------------------------------------------------------------------------------------------|-----------------|-------------------------------------------|
| Wiring and Grounding for PWM AC Drives | DRIVES-IN001... | www.rockwellautomation.com/ literature |
| Safety Guidelines for the Application, Installation and Maintenance of Solid State Control | SGI-1.1 | |
| A Global Reference Guide for Reading Schematic Diagrams | 100-2.10 | |
| Guarding Against Electrostatic Damage | 8000-4.5.2 | |

The following publications provide detailed PowerFlex® 700S drive information:

| Title | Publication | Available... |
|-------------------------------------------------------------|----------------|-------------------------------------------|
| PowerFlex 700S Phase II Reference Manual | PFLEX-RM003... | www.rockwellautomation.com/ literature |
| PowerFlex 700S Phase II Quick Start - Frames 1-6 | 20D-QS002... | |
| PowerFlex 700S Phase II Quick Start - Frames 9-13 | 20D-QS004... | |
| PowerFlex 700H/S Drives Installation Manual - Frames 9 - 13 | PFLEX-IN006... | |

The following publications provide specific PowerFlex 700S drive features information:

| Title | Publication | Available... |
|---------------------------------------------------------------------------------------------------|--------------|-------------------------------------------|
| Installation Instructions - Stegmann Feedback Option for PowerFlex 700S Drive | 20D-IN001... | www.rockwellautomation.com/ literature |
| Installation Instructions - Resolver Feedback Option for PowerFlex 700S Drives | 20D-IN002... | |
| Installation Instructions - Multi-Device Interface for PowerFlex 700S Drive | 20D-IN004... | |
| Installation Instructions - Second Encoder Option for PowerFlex 700S Drives with Phase II Control | 20D-IN009... | |
| Firmware Release Notes - PowerFlex 700S Drive & DriveLogix | 20D-RN007... | |

For Allen-Bradley Drives Technical Support:

| Title | Online at... |
|----------------------------------------|-------------------------------------------------------------------------------------------------------------------|
| Allen-Bradley Drives Technical Support | www.rockwellautomation.com/literature or call M-F, 7:00a.m. to 7:00p.m. Central STD time: 1.262.512.8176 |

For Automation and Control Technical Support:

| Title | Online at... |
|---------------------------------------|-----------------------------------------------------|
| Rockwell Automation Technical Support | http://support.rockwellautomation.com/knowledgebase |

The following publications provide necessary information when applying the DriveLogix Controller.:

| Title | Publication | Available... |
|---------------------------------------------------------------|---------------|-------------------------------------------|
| DriveLogix5730 Controller User Manual | 20D-UM003... | www.rockwellautomation.com/ literature |
| PowerFlex 700S Drive & DriveLogix Controller | 20D-RN007... | |
| Logix5000 Controllers Common Procedures | 1756-PM001... | |
| Logix5000 Controllers General Instructions | 1756-RM003... | |
| Logix5000 Controllers Process Control and Drives Instructions | 1756-RM006... | |
| RSLogix 5000 Getting Results | 9399-RLD300GR | |

The following publications provide information that is useful when planning and installing communication networks:

| Title | Publication | Available... |
|----------------------------------------------------------|---------------|---------------------------------------|
| ControlNet Coax Tap Installation Instructions | 1786-5.7 | www.rockwellautomation.com/literature |
| ControlNet Cable System Planning and Installation Manual | 1786-6.2.1 | |
| ControlNet Fiber Media Planning and Installation Guide | CNET-IN001... | |

Manual Conventions

- In this manual we refer to the PowerFlex 700S Adjustable Frequency AC Drive as: drive, PowerFlex 700S, PowerFlex 700S drive or PowerFlex 700S AC drive.
- To help differentiate parameter names and LCD display text from other text, the following conventions will be used:
 - Parameter Names will appear in [brackets] after the Parameter Number.
For example: Par 307 [Output Voltage].
 - Display text will appear in “quotes.” For example: “Enabled.”
- The following words are used throughout the manual to describe an action:

| Word | Meaning |
|------------|----------------------------------------|
| Can | Possible, able to do something |
| Cannot | Not possible, not able to do something |
| May | Permitted, allowed |
| Must | Unavoidable, you must do this |
| Shall | Required and necessary |
| Should | Recommended |
| Should Not | Not recommended |

Drive Frame Sizes

Similar PowerFlex 700S drive sizes are grouped into frame sizes to simplify spare parts ordering, dimensioning, etc. A cross reference of drive catalog numbers and their respective frame size is provided in [Appendix A](#).

General Precautions

Class 1 LED Product



ATTENTION: Hazard of permanent eye damage exists when using optical transmission equipment. This product emits intense light and invisible radiation. Do not look into module ports or fiber optic cable connectors.



ATTENTION: This drive contains **ESD** (Electrostatic Discharge) sensitive parts and assemblies. Static control precautions are required when installing, testing, servicing or repairing this assembly. Component damage may result if ESD control procedures are not followed. If you are not familiar with static control procedures, reference A-B publication 8000-4.5.2, “Guarding Against Electrostatic Damage” or any other applicable ESD protection handbook.



ATTENTION: An incorrectly applied or installed drive can result in component damage or a reduction in product life. Wiring or application errors, such as, undersizing the motor, incorrect or inadequate AC supply, or excessive ambient temperatures may result in malfunction of the system.



ATTENTION: Only **qualified personnel** familiar with the PowerFlex 700S Drive and associated machinery should plan or implement the installation, start-up and subsequent maintenance of the system. Failure to comply may result in personal injury and/or equipment damage.



ATTENTION: To avoid an electric shock hazard, verify that the voltage on the bus capacitors has discharged before performing any work on the drive. Measure the DC bus voltage at the +DC & –DC terminals of the Power Terminal Block (refer to [Chapter 1](#) for location). The voltage must be zero.



ATTENTION: Risk of injury or equipment damage exists. DPI or SCANport host products must not be directly connected together via 1202 cables. Unpredictable behavior can result if two or more devices are connected in this manner.



ATTENTION: Risk of injury or equipment damage exists. Parameters 365 [Fdbk LsCnfg Pri] - 394 [VoltFdbkLossCnfg] let you determine the action of the drive in response to operating anomalies. Precautions should be taken to ensure that the settings of these parameters do not create hazards of injury or equipment damage.



ATTENTION: Risk of injury or equipment damage exists. Parameters 383 [SL CommLoss Data] - 392 [NetLoss DPI Cnfg] let you determine the action of the drive if communications are disrupted. You can set these parameters so that the drive continues to run. Precautions should be taken to ensure that the settings of these parameters do not create hazards of injury or equipment damage.

Catalog Number Explanation

| Position | | | | | | | | | | | | |
|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|
| 1-3 | 4 | 5-7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 |
| 20D | D | 2P1 | A | 0 | E | Y | N | A | N | A | N | E |
| <i>a</i> | <i>b</i> | <i>c</i> | <i>d</i> | <i>e</i> | <i>f</i> | <i>g</i> | <i>h</i> | <i>i</i> | <i>j</i> | <i>k</i> | <i>l</i> | <i>m</i> |

| <i>a</i> | | | |
|----------|----------------|--|--|
| Drive | | | |
| Code | Type | | |
| 20D | PowerFlex 700S | | |

| <i>b</i> | | | |
|----------------|---------|-----|---------|
| Voltage Rating | | | |
| Code | Voltage | Ph. | Prechg. |
| B § | 240V ac | 3 | — |
| C § | 400V ac | 3 | — |
| D § | 480V ac | 3 | — |
| E ♣ § | 600V ac | 3 | — |
| F ¶ | 690V ac | 3 | — |
| H ¶ | 540V dc | — | N |
| J ¶ | 650V dc | — | N |
| K ¶ | 810V dc | — | N |
| M ¶ | 932V dc | — | N |
| N | 325V dc | — | Y |
| P | 540V dc | — | Y |
| R | 650V dc | — | Y |
| T | 810V dc | — | Y |
| W | 932V dc | — | Y |

♣ Note: CE Certification testing has not been performed on 600V class drives, Frames 1...4.
Frames 5 & 6 Only.

¶ Frames 5 & up.

§ For DC input on Frames 1...4, use the corresponding AC input code B, C, D, or E.

| <i>c1</i> | | | |
|----------------------|-----------|-----------|-----|
| ND Rating | | | |
| 208/240V, 60Hz Input | | | |
| Code | 208V Amps | 240V Amps | Hp |
| 4P2 | 4.8 | 4.2 | 1.0 |
| 6P8 | 7.8 | 6.8 | 2.0 |
| 9P6 | 11 | 9.6 | 3.0 |
| 015 | 17.5 | 15.3 | 5.0 |
| 022 | 25.3 | 22 | 7.5 |
| 028 | 32.2 | 28 | 10 |
| 042 | 48.3 | 42 | 15 |
| 052 | 56 | 52 | 20 |
| 070 | 78.2 | 70 | 25 |
| 080 | 92 | 80 | 30 |
| 104 | 120 | 104 | 40 |
| 130 | 130 | 130 | 50 |
| 154 | 177 | 154 | 60 |
| 192 | 221 | 192 | 75 |
| 260 | 260 | 260 | 100 |

| <i>c2</i> | | | |
|-------------------|------|------|--|
| ND Rating | | | |
| 400V, 50 Hz Input | | | |
| Code | Amps | kW | |
| 2P1 | 2.1 | 0.75 | |
| 3P5 | 3.5 | 1.5 | |
| 5P0 | 5.0 | 2.2 | |
| 8P7 | 8.7 | 4.0 | |
| 011 | 11.5 | 5.5 | |
| 015 | 15.4 | 7.5 | |
| 022 | 22 | 11 | |
| 030 | 30 | 15 | |
| 037 | 37 | 18.5 | |
| 043 | 43 | 22 | |
| 056 | 56 | 30 | |
| 072 | 72 | 37 | |
| 085 | 85 | 45 | |
| 105 | 105 | 55 | |
| 125 | 125 | 55 | |
| 170 | 170 | 90 | |
| 205 | 205 | 110 | |
| 260 | 260 | 132 | |
| 261 | 261 | 132 | |
| 300 | 300 | 160 | |
| 385 | 385 | 200 | |
| 460 | 460 | 250 | |
| 500 | 500 | 250 | |
| 590 | 590 | 315 | |
| 650 | 650 | 355 | |
| 730 | 730 | 400 | |
| 820 | 820 | 450 | |
| 920 | 920 | 500 | |
| 1K0 | 1030 | 560 | |
| 1K1 | 1150 | 630 | |
| 1K3 | 1300 | 710 | |
| 1K4 | 1450 | 800 | |

| <i>c3</i> | | | |
|-------------------|------|------|--|
| ND Rating | | | |
| 480V, 60 Hz Input | | | |
| Code | Amps | Hp | |
| 2P1 | 2.1 | 1.0 | |
| 3P4 | 3.4 | 2.0 | |
| 5P0 | 5 | 3.0 | |
| 8P0 | 8 | 5.0 | |
| 011 | 11 | 7.5 | |
| 014 | 14 | 10 | |
| 022 | 22 | 15 | |
| 027 | 27 | 20 | |
| 034 | 34 | 25 | |
| 040 | 40 | 30 | |
| 052 | 52 | 40 | |
| 065 | 65 | 50 | |
| 077 | 77 | 60 | |
| 096 | 96 | 75 | |
| 125 | 125 | 100 | |
| 156 | 156 | 125 | |
| 180 | 180 | 150 | |
| 248 | 248 | 200 | |
| 261 | 261 | 200 | |
| 300 | 300 | 250 | |
| 385 | 385 | 300 | |
| 460 | 460 | 350 | |
| 500 | 500 | 450 | |
| 590 | 590 | 500 | |
| 650 | 650 | 500 | |
| 730 | 730 | 600 | |
| 820 | 820 | 700 | |
| 920 | 920 | 800 | |
| 1K0 | 1030 | 900 | |
| 1K1 | 1150 | 1000 | |
| 1K3 | 1300 | 1200 | |
| 1K4 | 1450 | 1250 | |

Catalog Number Explanation, Cont'd

c4

| ND Rating | | |
|--------------------|------|------|
| 600V, 60Hz Input * | | |
| Code | Amps | Hp |
| 1P7 | 1.7 | 1 |
| 2P7 | 2.7 | 2 |
| 3P9 | 3.9 | 3 |
| 6P1 | 6.1 | 5 |
| 9P0 | 9 | 7.5 |
| 011 | 11 | 10 |
| 017 | 17 | 15 |
| 022 | 22 | 20 |
| 027 | 27 | 25 |
| 032 | 32 | 30 |
| 041 | 41 | 40 |
| 052 | 52 | 50 |
| 062 | 62 | 60 |
| 077 | 77 | 75 |
| 099 | 99 | 100 |
| 125 | 125 | 125 |
| 144 | 144 | 150 |
| 170 | 170 | 150 |
| 208 | 208 | 200 |
| 261 | 261 | 250 |
| 325 | 325 | 350 |
| 385 | 385 | 400 |
| 416 | 416 | 450 |
| 460 | 460 | 450 |
| 502 | 502 | 500 |
| 590 | 590 | 600 |
| 650 | 650 | 700 |
| 750 | 750 | 800 |
| 820 | 820 | 900 |
| 920 | 920 | 1000 |
| 1K0 | 1030 | 1100 |
| 1K1 | 1180 | 1300 |

* Note: CE Certification testing has not been performed on 600V class drives Frames 1...4.

d

| Enclosure | |
|-----------|-------------------|
| Code | Enclosure |
| A | IP20, NEMA Type 1 |
| N + | Open/IP00 |

+ Frames 9 & up Only.

e

| HIM | |
|------|--------------------------------|
| Code | Operator Interface |
| 0 | Blank Cover |
| 2 | Digital LCD |
| 3 | Full Numeric LCD |
| 5 | Prog. Only LCD |
| C | Full Numeric LCD, Door Mount * |

* Frames 10 & up only.

c5

| ND Rating | | |
|---------------------|------|------|
| 690V, 50 Hz Input * | | |
| Code | Amps | kW |
| 052 | 52 | 45 |
| 060 | 60 | 55 |
| 082 | 82 | 75 |
| 098 | 98 | 90 |
| 119 | 119 | 110 |
| 142 | 142 | 132 |
| 170 | 170 | 160 |
| 208 | 208 | 200 |
| 261 | 261 | 250 |
| 325 | 325 | 315 |
| 385 | 385 | 355 |
| 416 | 416 | 400 |
| 460 | 460 | 450 |
| 502 | 502 | 500 |
| 590 | 590 | 560 |
| 650 | 650 | 630 |
| 750 | 750 | 710 |
| 820 | 820 | 800 |
| 920 | 920 | 900 |
| 1K0 | 1030 | 1000 |
| 1K1 | 1180 | 1100 |

* Note: CE Certification testing has not been performed on 600V class drives Frames 1...4.

f

| Documentation | |
|---------------|-------------------|
| Code | Documents |
| E | Quick Start Guide |
| N | No Documentation |

g

| Brake | |
|-------|----------------|
| Code | w/Brake IGBT ‡ |
| Y | Yes |
| N | No |

‡ Brake IGBT is standard on Frames 1-3 and optional on Frames 4-9 ONLY.

h

| Brake Resistor | |
|----------------|------------|
| Code | w/Resistor |
| Y | Yes |
| N | No |

Not available for Frame 3 drives or larger.

i

| Emission | | |
|----------|-------------|----------|
| Code | CE Filter * | CM Choke |
| A * | Yes | Yes |
| B | Yes | No |
| N § | No | No |

* Frames 1-6 Only.

Frames 9 & up Only.

§ For use on a high resistive ground or ungrounded distribution system (Frame 9 only).

* Note: CE Certification testing has not been performed on 600V class drives Frames 1...4.

j

| Comm Slot | |
|-----------|-----------------------------------------|
| Code | Version |
| N | None |
| C | DPI ControlNet (Coax) |
| D | DPI DeviceNet |
| E | DPI EtherNet/IP |
| R | DPI RIO |
| S | DPI RS-485 DF1 |
| 1 | DriveLogix ControlNet (Coax) |
| 2 | DriveLogix ControlNet Redundant (Coax) |
| 3 | DriveLogix ControlNet (Fiber) |
| 4 | DriveLogix ControlNet Redundant (Fiber) |
| 5 | DriveLogix DeviceNet (Open Conn.) |
| 6 | DriveLogix EtherNet/IP |

k

| Control Options | | | | |
|-----------------|----------------|-----------------|-------------|----------|
| Code | Control Option | Logic Expansion | Synch -Link | Cassette |
| A | Phase II | No | No | Expanded |
| B | Phase II | No | Yes | Expanded |
| C | Phase II | Yes | No | Expanded |
| D | Phase II | Yes | Yes | Expanded |
| G | Phase II | N/A | No | Slim |
| H | Phase II | N/A | Yes | Slim |

l

| Feedback | |
|----------|-------------------------------|
| Code | Option |
| N % | No Option |
| A * | Resolver |
| B * | Stegman Hi-Resolution Encoder |
| C * | Multi-Device Interface |
| E * | 2nd Encoder |
| S * | Safe-Off (w/2nd Encoder) |

* Expanded cassette required.

% One encoder interface is included with the base drive.

m

| Additional Config. | |
|--------------------|---------------------------------------|
| Code | Description |
| E | Phase II Control |
| K | Phase II DriveLogix5730 |
| L + | Phase II DriveLogix5730 w/EtherNet/IP |

+ This is an embedded EtherNet option that is only available with DriveLogix5730.

Installation/Wiring

Chapter Objectives

This chapter provides the information needed to mount and wire PowerFlex® 700S AC drives, frames 1 - 6. For installation instructions for PowerFlex 700S AC drives frames 9 - 13, refer to publication PFLEX-IN006.

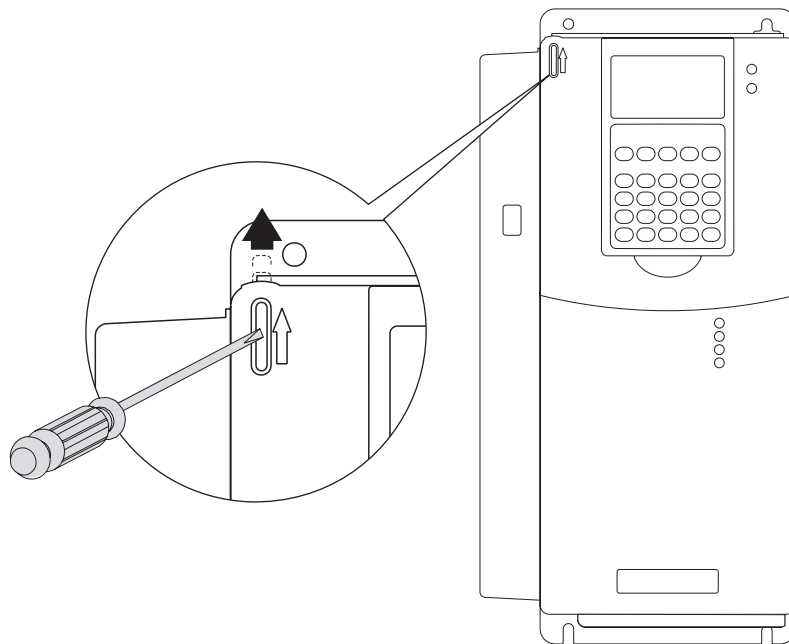
| For Information on ... | See Page... |
|----------------------------------------------------------------------------|----------------------|
| Opening the Cover | 1-2 |
| Mounting Clearances | 1-3 |
| AC Supply Source Considerations | 1-4 |
| Grounding Requirements | 1-5 |
| Fuses and Circuit Breakers | 1-6 |
| Power Wiring | 1-7 |
| Using Input/Output Contactors | 1-16 |
| Using PowerFlex® 700S Drives with Regenerative Power Units | 1-16 |
| Disconnecting MOVs and Common Mode Capacitors | 1-17 |
| I/O Wiring | 1-19 |
| CE Conformity | 1-29 |

Since most start-up difficulties are the result of incorrect wiring, take every precaution to assure the wiring is correct. Read and understand all items in this chapter before beginning installation.



ATTENTION: The following information is merely a guide for proper installation. The Allen-Bradley Company cannot assume responsibility for the compliance or the noncompliance to any code, national, local or otherwise for the proper installation of this drive or associated equipment. A hazard of personal injury and/or equipment damage exists if codes are ignored during installation.

Opening the Cover



Frames 1-4

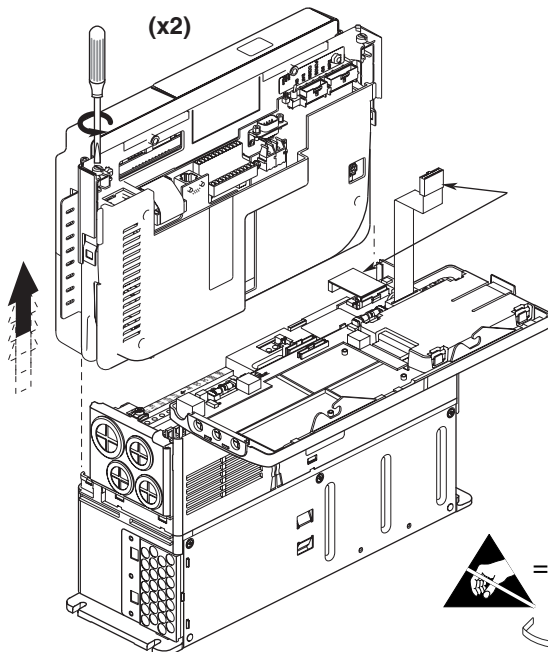
Locate the slot in the upper left corner. Slide the locking tab up and swing the cover open. Special hinges allow cover to move away from drive and lay on top of adjacent drive (if present).

Frame 5

Slide the locking tab up, loosen the right-hand cover screw and remove.

Frame 6

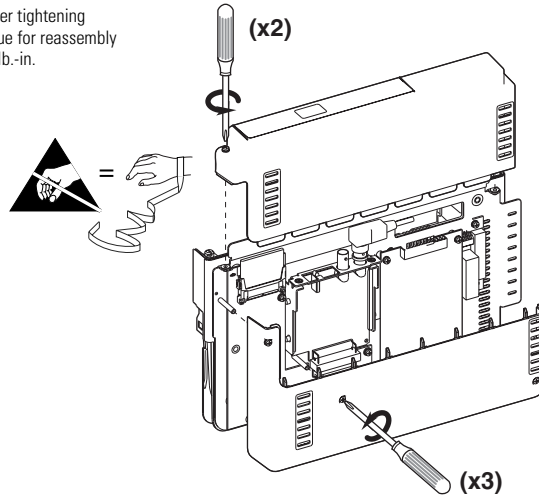
Loosen 2 screws at bottom of drive cover. Carefully slide bottom cover down & out. Loosen the 2 screws at top of cover and remove.



Removing the Cassette

| Task | Description |
|----------|-----------------------------------------------------------------------------------------------|
| A | Open the door of the power structure and disconnect the cables that connect to the main board |
| B | Loosen screws on face of cassette |
| C | Remove the cassette |

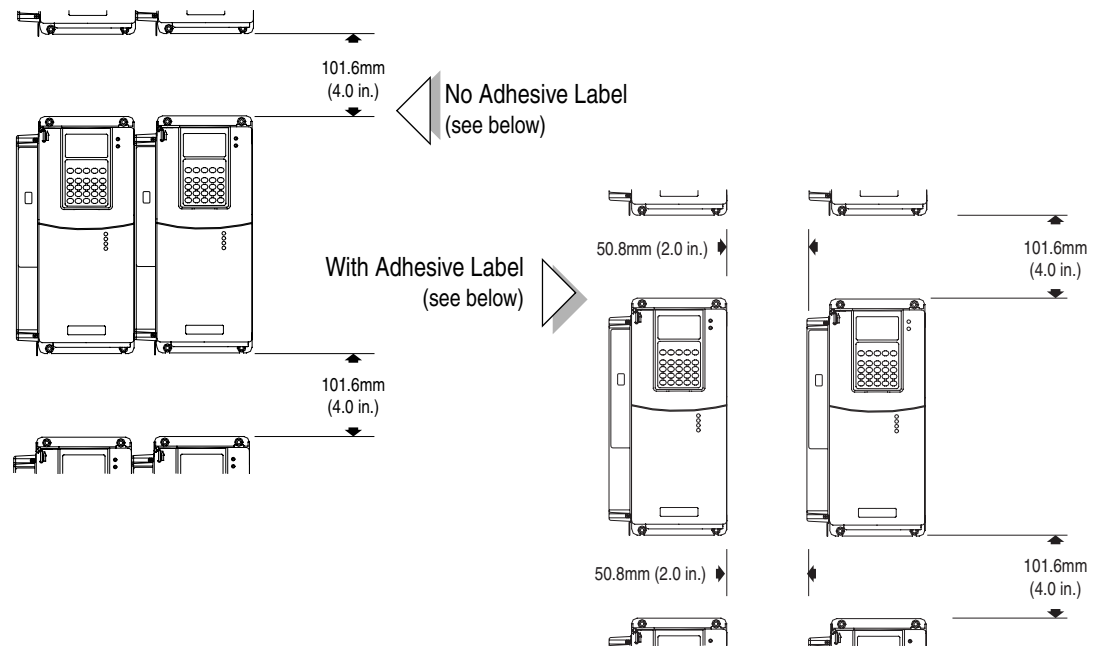
Proper tightening torque for reassembly is 6 lb.-in.



Removing the Side Covers

| Task | Description |
|----------|-----------------------------------------------------------|
| A | Loosen screws on face of front cover and remove the cover |
| B | Loosen screws on side of rear cover and remove the cover |

Mounting Clearances



Operating Temperatures

Refer to the Drive, Fuse and Circuit Breaker Ratings tables in [Appendix A](#) for information on drive ambient operating temperatures.

AC Supply Source Considerations

PowerFlex drives are suitable for use on a circuit capable of delivering up to a maximum of 200,000 rms symmetrical amperes, 600 volts with recommended fuses/circuit breakers. Refer to the *PowerFlex Reference Manual - Phase II Control*, publication PFLEX-RM003, for actual interrupt ratings based on circuit breaker or fuse choice.



ATTENTION: To guard against personal injury and/or equipment damage caused by improper fusing or circuit breaker selection, use only the recommended line fuses/circuit breakers specified in [Appendix A](#).

If a Residual Current Detector (RCD) is used as a system ground fault monitor, only Type B (adjustable) devices should be used to avoid nuisance tripping.

Unbalanced, Ungrounded or Resistive Grounded Distribution Systems

If phase to ground voltage will exceed 125% of normal or the supply system is ungrounded, refer to *Wiring and Grounding Guidelines for Pulse Width Modulated (PWM) AC Drives*, publication DRIVES-IN001, for more information.



ATTENTION: PowerFlex 700S drives contain protective MOVs and common mode capacitors that are referenced to ground. These devices must be disconnected if the drive is installed on a resistive grounded distribution system or an ungrounded distribution system. See page [page 1-18](#) for jumper locations.

Input Power Conditioning

Certain events on the power system supplying a drive can cause component damage or shortened product life. These conditions are divided into 2 basic categories:

1. All Drives

- The power system has power factor correction capacitors switched in and out of the system, either by the user or by the power company.
- The power source has intermittent voltage spikes in excess of 6000 volts. These spikes could be caused by other equipment on the line or by events such as lightning strikes.
- The power source has frequent interruptions.

2. 5 HP or Less Drives (in addition to “1” above)

- The nearest supply transformer is larger than 100kVA or the available short circuit (fault) current is greater than 100,000A.
- The impedance in front of the drive is less than 0.5%.

If any or all of these conditions exist, it is recommended that the user install a minimum amount of impedance between the drive and the source. This impedance could come from the supply transformer itself, the cable between the transformer and drive or an additional transformer or reactor. The impedance can be calculated using the information supplied in the technical document *Wiring and Grounding Guidelines for Pulse Width Modulated (PWM) AC Drives*, publication DRIVES-IN001.

Grounding Requirements

The drive Safety Ground-PE must be connected to system ground.

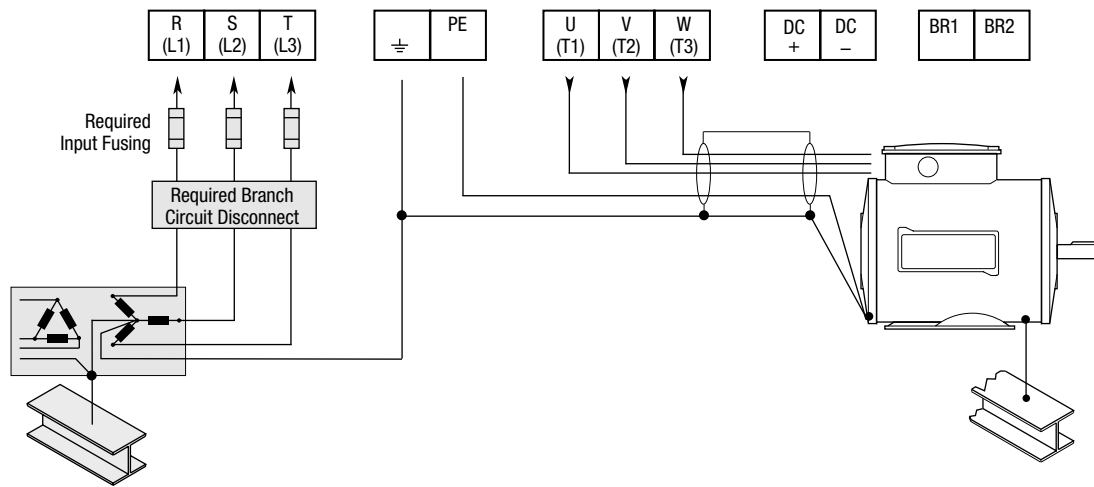
Ground impedance must conform to the requirements of national and local industrial safety regulations and/or electrical codes. The integrity of all ground connections should be periodically checked.

Recommended Grounding Scheme

A single point (PE only) grounding scheme should be used. Some applications may require alternate grounding schemes, refer to the *Wiring and Grounding Guidelines for pulse Width Modulated (PWM) AC Drives*, publication number DRIVES-IN001, for more information. These applications include installations with long distances between drives or drive line-ups, which could cause large potential differences between the drive or line-up grounds.

For installations within a cabinet, a single safety ground point or ground bus bar connected directly to building steel should be used. All circuits including the AC input ground conductor should be grounded independently and directly to this point/bar.

Figure 1.1 Typical Grounding



Shield Termination - SHLD

The Shield terminal (see [Figure 1.3 on page 1-13](#)) provides a grounding point for the motor cable shield. It must be connected to an earth ground by a separate continuous lead. The **motor cable** shield should be connected to this terminal on the drive (drive end) and the motor frame (motor end). Use a shield terminating or EMI clamp to connect shield to this terminal.

RFI Filter Grounding

Using an optional RFI filter may result in relatively high ground leakage currents. Therefore, the **filter must only be used in installations with grounded AC supply systems and be permanently installed and solidly grounded** (bonded) to the building power distribution ground. Ensure that the incoming supply neutral is solidly connected (bonded) to the same building power distribution ground. Grounding must not rely on flexible cables and should not include any form of plug or socket that would permit inadvertent disconnection. Some local codes may require redundant ground connections. The integrity of all connections should be periodically checked. Refer to the instructions supplied with the filter.

Fuses and Circuit Breakers

The PowerFlex 700S can be installed with either input fuses or an input circuit breaker. Local/national electrical codes may determine additional requirements for these installations. Refer to [Appendix A](#) for recommended fuses/circuit breakers.



ATTENTION: The PowerFlex 700S does not provide input power short circuit protection. Specifications for the recommended fuse or circuit breaker to provide drive input power protection against short circuits are provided in [Appendix A](#).

Power Wiring

Since most start-up difficulties are the result of incorrect wiring, take every precaution to assure the wiring is correct. Read and understand all items in this section before beginning installation.



ATTENTION: The following information is merely a guide for proper installation. The Allen-Bradley Company cannot assume responsibility for the compliance or the noncompliance to any code, national, local or otherwise for the proper installation of this drive or associated equipment. A hazard of personal injury and/or equipment damage exists if codes are ignored during installation.

Power Cable Types Acceptable for 200-600 Volt Installations



ATTENTION: National Codes and standards (NEC, BSI etc.) and local codes outline provisions for safely installing electrical equipment. Installation must comply with specifications regarding wire types, conductor sizes, branch circuit protection and disconnect devices. Failure to do so may result in personal injury and/or equipment damage.

A variety of cable types are acceptable for drive installations. For many installations, unshielded cable is adequate, provided it can be separated from sensitive circuits. As an approximate guide, allow a spacing of 0.3 meters (1 foot) for every 10 meters (32.8 feet) of length. In all cases, long parallel runs must be avoided. Do not use cable with an insulation thickness less than or equal to 15 mils (0.4mm/0.015 in.). Use copper wire only. Wire gauge requirements and recommendations are based on 75° C. Do not reduce wire gauge when using higher temperature wire.

Table 1.A Recommended Cable Design

| Type | Max. Wire Size | Where Used | Rating/Type | Description |
|--------|----------------|-------------------------------------------------------------------|--------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Type 1 | 2 AWG | Standard Installations 100 HP or less | 600V, 90°C (194°F) XHHW2/RHW-2 | Four tinned copper conductors with XLPE insulation |
| Type 2 | 2 AWG | Standard Installations 100 HP or less with Brake Conductors | 600V, 90°C (194°F) RHH/RHW-2 | Four tinned copper conductors with XLPE insulation plus one (1) shielded pair of brake conductors. |
| Type 3 | 500 MCM AWG | Standard Installations 150 HP or more | Tray rated 600V, 90°C (194°F) RHH/RHW-2 | Three tinned copper conductors with XLPE insulation and (3) bare copper grounds and PVC jacket. |
| Type 4 | 500 MCM AWG | Water, Caustic Chemical, Crush Resistance | Tray rated 600V, 90°C (194°F) RHH/RHW-2 | Three bare copper conductors with XLPE insulation and three copper grounds on #10 AWG and smaller. Acceptable in Class I & II, Division I & II locations. |
| Type 5 | 500 MCM AWG | 690V Applications | Tray rated 2000V, 90°C (194°F) | Three tinned copper conductors with XLPE insulation. (3) bare copper grounds and PVC jacket. Note: If terminator network or output filter is used, connector insulation must be XLPE, not PVC. |

Unshielded

THHN, THWN or similar wire is acceptable for drive installation in dry environments provided adequate free air space and/or conduit fill rates limits are provided. **Do not use THHN or similarly coated wire in wet areas.** Any wire chosen must have a minimum insulation thickness of 15 Mils and should not have large variations in insulation concentricity.

Shielded/Armored Cable

Shielded cable contains all of the general benefits of multi-conductor cable with the added benefit of a copper braided shield that can contain much of the noise generated by a typical AC Drive. Strong consideration for shielded cable should be given in installations with sensitive equipment such as weigh scales, capacitive proximity switches and other devices that may be affected by electrical noise in the distribution system. Applications with large numbers of drives in a similar location, imposed EMC regulations or a high degree of communications/networking are also good candidates for shielded cable.

Shielded cable may also help reduce shaft voltage and induced bearing currents for some applications. In addition, the increased impedance of shielded cable may help extend the distance the motor can be located from the drive without the addition of motor protective devices such as terminator networks. Refer to “Reflected Wave” in *Wiring and Grounding Guidelines for Pulse Width Modulated (PWM) AC Drives*, publication DRIVES-IN001.

Consideration should be given to all of the general specifications dictated by the environment of the installation, including temperature, flexibility, moisture characteristics and chemical resistance. In addition, a braided shield should be included and specified by the cable manufacturer as having coverage of at least 75%. An additional foil shield can be greatly improve noise containment.

A good example of recommended cable is Belden® 295xx (xx determines gauge). This cable has 4 XLPE insulated conductors with a 100% coverage foil and an 85% coverage copper braided shield (with drain wire) surrounded by a PVC jacket.

Other types of shielded cable are available, but the selection of these types may limit the allowable cable length. Particularly, some of the newer cables twist 4 conductors of THHN wire and wrap them tightly with a foil shield. This construction can greatly increase the cable charging current required and reduce the overall drive performance. Unless specified in the individual distance tables as tested with the drive, these cables are not recommended and their performance against the lead length limits supplied is not known.

EMC Compliance

Refer to [CE Conformity on page 1-29](#) for details.

Cable Trays and Conduit

If cable trays or large conduits are to be used, refer to guidelines presented in publication DRIVES-IN001. . . , *Grounding and Wiring Guidelines for Pulse Width Modulated (PWM) AC Drives*.



ATTENTION: To avoid a possible shock hazard caused by induced voltages, unused wires in the conduit must be grounded at both ends. For the same reason, if a drive sharing a conduit is being serviced or installed, all drives using this conduit should be disabled. This will help minimize the possible shock hazard from “cross coupled” motor leads.

Motor Cable Lengths

Typically, motor lead lengths less than 30 meters (100 feet) are acceptable. For motor lead lengths of 30 meters (100 feet) or above, applicable cable types and length recommendations and restrictions, refer to publication 20D-TD002 . . . , *Technical Data - PowerFlex 700S Drives - Phase II Control*, or publication DRIVES-IN001..., *Grounding and Wiring Guidelines for Pulse Width Modulated (PWM) AC Drives*.

Power Terminal Blocks

[Figure 1.3 on page 1-13](#) shows the typical location of the Power Terminal Block in PowerFlex 700S frame 1 - 6 drives.

Cable Entry Plate Removal

If additional wiring access is needed, the Cable Entry Plate on Frame 1-3 drives can be removed. Simply loosen the screws securing the plate to the chassis. The slotted mounting holes assure easy removal.

Important: Removing the Cable Entry Plate limits the maximum surrounding air temperature to 40° C (104° F).

Power Wiring Access Panel Removal



ATTENTION: Removing the access panel/cover exposes dangerous voltages on the terminals and negates the enclosure type rating. Replace the access panel/cover when service is complete. Failure to comply may result in personal injury or equipment damage.

| Frame | Removal Procedure <i>(Replace when wiring is complete)</i> |
|----------|----------------------------------------------------------------------------------------|
| 1, 2 & 6 | Remove part of the front cover, see page 1-2 . |
| 3 | Open front cover and gently tap/slide the cover down and out. |
| 4 | Loosen the 4 screws and remove. |
| 5 | Remove front cover (see page 1-2), gently tap/slide panel up and out. |

AC Input Phase Selection (Frames 5 & 6 Only)



ATTENTION: To avoid a shock hazard, ensure that all power to the drive has been removed before performing the following.

Moving the “Line Type” jumper shown in [Figure 1.2 on page 1-11](#) will select single or three-phase operation. Remove plastic guard to access jumper.

Important: When selecting single-phase operation, input power must be applied to the R (L1) and S (L2) terminals only.

Cooling Fan Voltage

Common Bus drives require user supplied 120 or 240V AC to power the cooling fans. The power source is connected between “0V AC” and the terminal corresponding to your source voltage (see [Figure 1.4 on page 1-14](#)).

Table 1.B Fan VA Rating

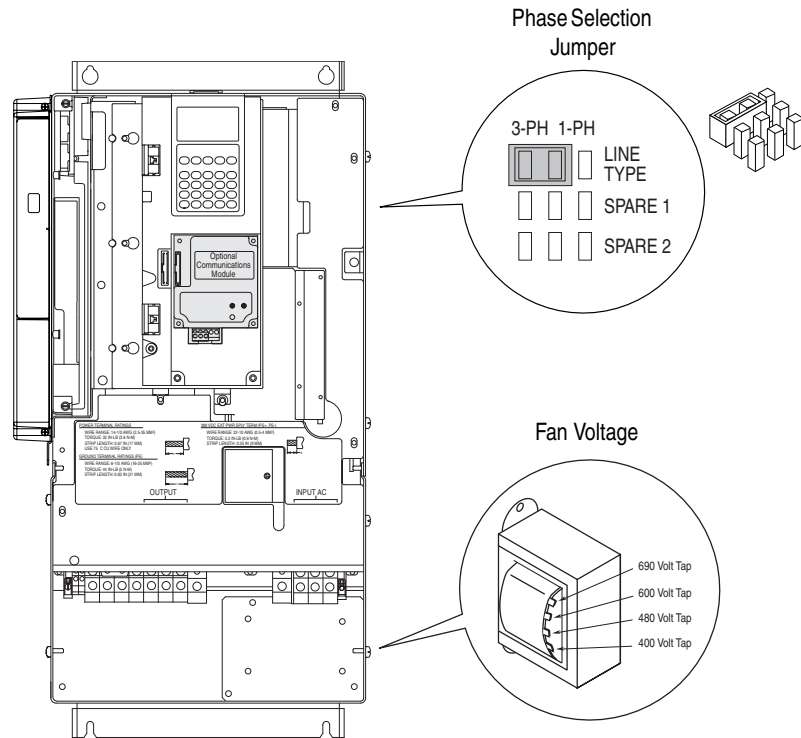
| Frame | Fan Voltage <i>(120V or 240V)</i> |
|-------|-----------------------------------|
| 5 | 100 VA |
| 6 | 138 VA |

Selecting/Verifying Fan Voltage (Frames 5 & 6 Only)



ATTENTION: To avoid a shock hazard, ensure that all power to the drive has been removed before performing the following:

Frames 5 & 6 utilize a transformer to match the input line voltage to the internal fan voltage. If your line voltage is different than the voltage class specified on the drive nameplate, it may be necessary to change the transformer taps. The taps are shown in [Figure 1.2 on page 1-11](#).

Figure 1.2 Frames 5 & 6 Jumper and Transformer Locations (Frame 5 shown)

Frame 6 Transformer Tap Access

The transformer is located behind the Power Terminal Block in the area shown in [Figure 1.2](#). Gain access by releasing the terminal block from the rail. To release terminal block and change tap:

1. Locate the small metal tab at the bottom of the end block.
2. Press the tab in and pull the top of the block out. Repeat for next block if desired.
3. Select appropriate transformer tap.
4. Replace block(s) in reverse order.

Important Common Bus (DC Input) Application Notes

- If drives without internal precharge are used (Frames 5 & 6 only), then:
 - precharge capability must be provided in the system to guard against possible damage, and
 - disconnect switches **Must Not** be used between the input of the drive and a common DC bus without the use of an external precharge device.
- If drives with internal precharge (Frames 1-6) are used with a disconnect switch to the common bus, then an auxiliary contact on the disconnect must be connected to a digital input of the drive. The corresponding input (parameter 825-830) must be set to “Precharge Enable”. This provides the proper precharge interlock, guarding against possible damage to the drive when connected to a common DC bus.

Table 1.C Power Terminal Block Specifications

| No. | Name | Frame | Description | Wire Size Range ⁽¹⁾ | | Torque | | Terminal Bolt Size ⁽²⁾ |
|-----|-----------------------------------------|------------------------------|------------------------------------------------------|---------------------------------------------------|---------------------------------|--------------------------|--------------------------|-----------------------------------|
| | | | | Maximum | Minimum | Maximum | Recommended | |
| ❶ | Power Terminal Block | 1 | Input power and motor connections | 4.0 mm ² (10 AWG) | 0.5 mm ² (22 AWG) | 1.7 N-m (15 lb.-in.) | 0.8 N-m (7 lb.-in.) | — |
| | | 2 | Input power and motor connections | 10.0 mm ² (6 AWG) | 0.8 mm ² (18 AWG) | 1.7 N-m (15 lb.-in.) | 1.4 N-m (12 lb.-in.) | — |
| | | 3 | Input power and motor connections | 25.0 mm ² (3 AWG) | 2.5 mm ² (14 AWG) | 3.6 N-m (32 lb.-in.) | 1.8 N-m (16 lb.-in.) | — |
| | | | BR1, BR2 | 10.0 mm ² (6 AWG) | 0.8 mm ² (18 AWG) | 1.7 N-m (15 lb.-in.) | 1.4 N-m (12 lb.-in.) | — |
| | | 4 | Input power and motor connections | 35.0 mm ² (1/0 AWG) | 10 mm ² (8 AWG) | 4.0 N-m (24 lb.-in.) | 4.0 N-m (24 lb.-in.) | — |
| | | 5 (75 HP) ⁽³⁾ | R, S, T, BR1, BR2, DC+, DC-, U, V and W | 50.0 mm ² (1/0 AWG) | 2.5 mm ² (14 AWG) | See Note ⁽⁴⁾ | See Note ⁽³⁾ | — |
| | | | PE | 50.0 mm ² (1/0 AWG) | 4.0 mm ² (12 AWG) | | | — |
| | | 5 (100 HP) ⁽³⁾ | R, S, T, DC+, DC-, U, V and W | 70.0 mm ² (2/0 AWG) | 16.0 mm ² (6 AWG) | | | — |
| | | | BR1, BR2 | 50.0 mm ² (1/0 AWG) | 2.5 mm ² (14 AWG) | | | — |
| | | | PE | 50.0 mm ² (1/0 AWG) | 4.0 mm ² (12 AWG) | | | — |
| | | 6 | Input power and motor connections | 120.0 mm ² (4/0 AWG) ⁽⁵⁾ | 2.5 mm ² (14 AWG) | 6 N-m (52 lb.-in.) | 6 N-m (52 lb.-in.) | — |
| ❷ | SHLD Terminal | 1-6 | Terminating point for wiring shields | — | — | 1.6 N-m (14 lb.-in.) | 1.6 N-m (14 lb.-in.) | M12 |
| ❸ | AUX Terminal Block | 1-4 | Auxiliary Control Voltage ⁽⁶⁾ PS+, PS- | 1.5 mm ² (16 AWG) | 0.2 mm ² (24 AWG) | — | — | — |
| | | 5-6 | | 4.0 mm ² (10 AWG) | 0.5 mm ² (22 AWG) | 0.6 N-m (5.3 lb.-in.) | 0.6 N-m (5.3 lb.-in.) | — |
| ❹ | Fan Terminal Block (Common Bus Only) | 5-6 | User Supplied Fan Voltage 0V AC, 120V AC, 240V AC | 4.0 mm ² (10 AWG) | 0.5 mm ² (22 AWG) | 0.6 N-m (5.3 lb.-in.) | 0.6 N-m (5.3 lb.-in.) | M10 |

⁽¹⁾ Maximum/minimum sizes that the terminal block will accept - these are not recommendations.

⁽²⁾ Apply counter torque to the nut on the other side of terminations when tightening or loosening the terminal bolt in order to avoid damage to the terminal.

⁽³⁾ Not all terminals present on all drives.

⁽⁴⁾ Refer to the terminal block label inside the drive.

⁽⁵⁾ If necessary, two wires can be used in parallel to any of these terminals using two lugs.

⁽⁶⁾ Auxiliary power: UL Installation - 300V DC, ±10%, Non UL Installation - 270-600V DC, ±10%. Frame 1-6, 100 W.

Figure 1.3 Typical Power Terminal Block Location

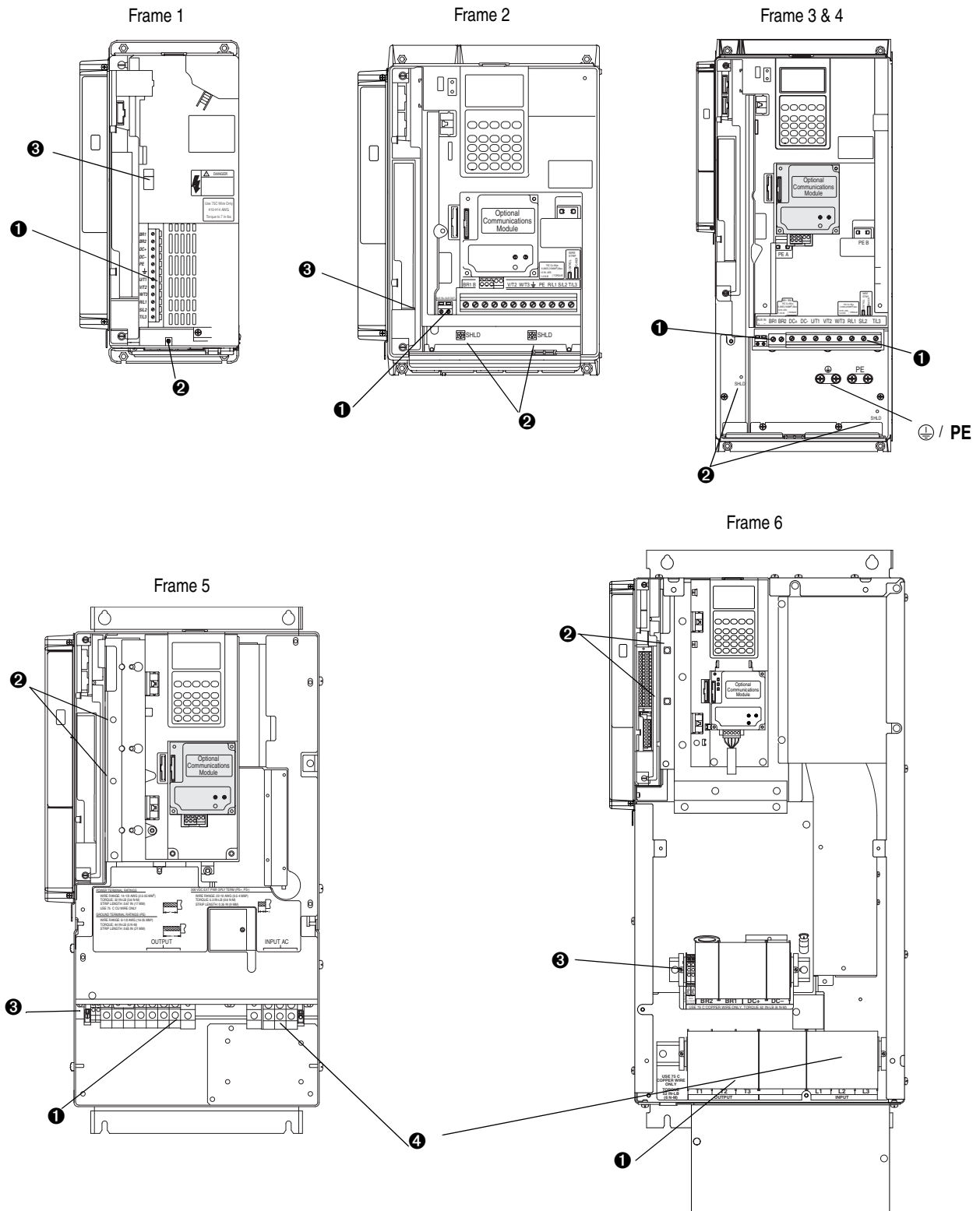
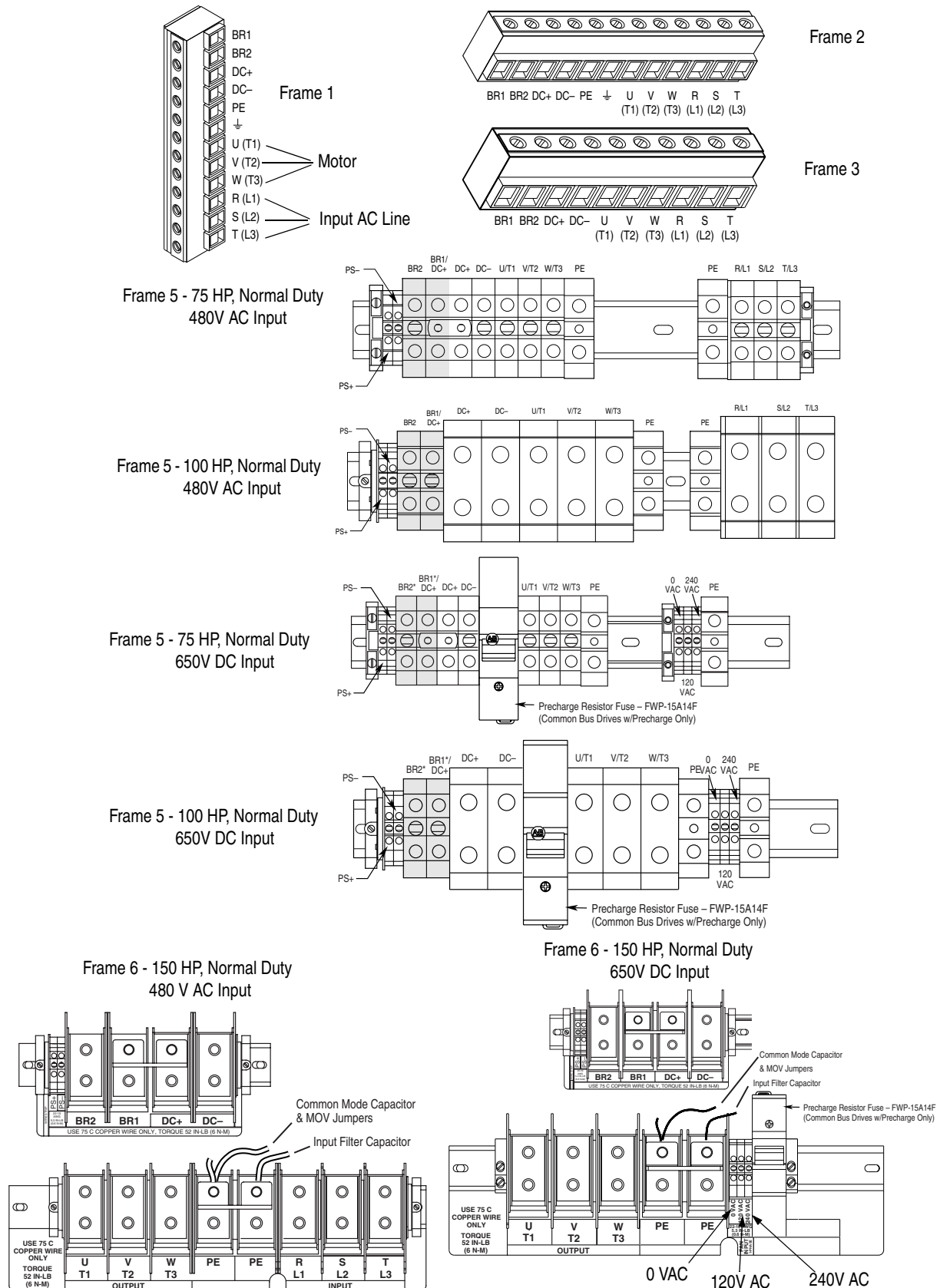



Figure 1.4 Power Terminal Block



Shaded terminals (BR1 & BR2) will only be present on drives ordered with the Brake Option.

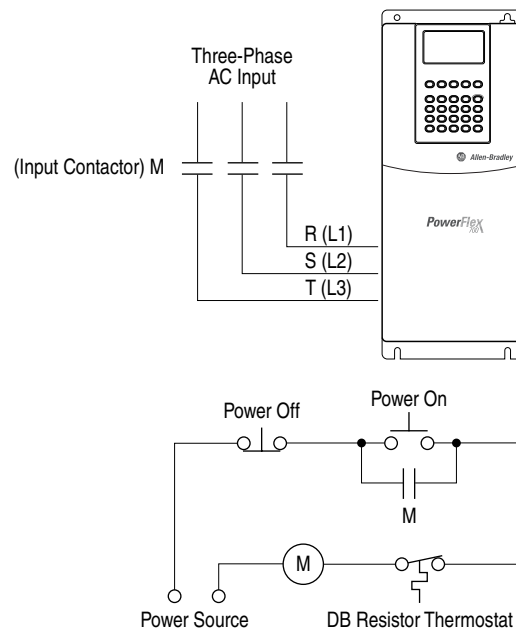
| Terminal | Description | Notes |
|-----------------------------------------------------------------------------------|--------------|-------------------------------------------------------------------------------|
| BR1 | DC Brake (+) | Dynamic Brake Resistor Connection (+) |
| BR2 | DC Brake (-) | Dynamic Brake Resistor Connection (-) |
| DC+ | DC Bus (+) | DC Input Power or Dynamic Brake Chopper |
| DC- | DC Bus (-) | DC Input Power or Dynamic Brake Chopper |
| PE | PE Ground | Refer to Figure 1.6 on page 18 for location on 3 Frame drives |
|  | Motor Ground | Refer to Figure 1.6 on page 18 for location on 3 Frame drives |
| U | U (T1) | To motor |
| V | V (T2) | To motor |
| W | W (T3) | To motor |
| R | R (L1) | AC Line Input Power |
| S | S (L2) | AC Line Input Power |
| T | T (L3) | AC Line Input Power |

Dynamic Brake Resistor Considerations



ATTENTION: The drive does not offer protection for externally mounted brake resistors. A risk of fire exists if external braking resistors are not protected. External resistor packages must be self-protected from over temperature or a circuit equivalent to the one shown below must be supplied.

Figure 1.5 External Brake Resistor Circuitry



Using Input/Output Contactors



ATTENTION: A contactor or other device that routinely disconnects and reapplies the AC line to the drive to start and stop the motor can cause drive hardware damage. The drive is designed to use control input signals that will start and stop the motor. If an input device is used occasionally, an auxiliary contact on that device should also be wired to a digital input programmed as a “Enable” function. The input device must not exceed one operation per minute or drive damage will occur.



ATTENTION: The drive start/stop control circuitry includes solidstate components. If hazards due to accidental contact with moving machinery or unintentional flow of liquid, gas or solids exist, an additional hardwired stop circuit may be required to remove the AC line to the drive. When the AC line is removed, there will be a loss of any inherent regenerative braking effect that might be present - the motor will coast to a stop. An auxiliary braking method may be required.



ATTENTION: To guard against drive damage when using output contactors, the following information must be read and understood. One or more output contactors may be installed between the drive and motor(s) for the purpose of disconnecting or isolating certain motors/loads. If a contactor is opened while the drive is operating, power will be removed from the respective motor, but the drive will continue to produce voltage at the output terminals. In addition, reconnecting a motor to an active drive (by closing the contactor) could produce excessive current that may cause the drive to fault. If any of these conditions are determined to be undesirable or unsafe, an auxiliary contact on the output contactor should be wired to a drive digital input that is programmed as “Enable.” This will cause the drive to execute a coast-to-stop (cease output) whenever an output contactor is opened.

Using PowerFlex® 700S Drives with Regenerative Power Units

If a Regenerative unit (i.e., 1336 REGEN) is used as a bus supply or a brake, the common mode capacitors should be disconnected (see [Table 1.D on page 1-17](#)).

Regenerative Unit to Drive Connections

Regenerative Brake Mode

| Frame(s) | Terminals | |
|----------|------------|----------------|
| | 1336 REGEN | PowerFlex 700S |
| 1 - 4 | DC+ & DC- | BR1 & DC- |
| 5 & 6 | DC+ & DC- | DC+ & DC- |

Regenerative Bus Supply Mode

| Frame(s) | Terminals | |
|----------|------------|------------------------------------|
| | 1336 REGEN | PowerFlex 700S |
| 1 - 4 | DC+ & DC- | DC+ & DC- |
| 5 & 6 | DC+ & DC- | DC+ & DC- of the Common Bus Drives |

Disconnecting MOVs and Common Mode Capacitors

PowerFlex 700S drives contain protective MOVs and common mode capacitors that are referenced to ground. To guard against drive damage, these devices must be disconnected if the drive is installed on a resistive grounded distribution system or an ungrounded distribution system where the line-to-ground voltages on any phase could exceed 125% of the nominal line-to-line voltage. To disconnect these devices, remove the jumper(s) listed in [Table 1.D](#). Jumpers can be removed by carefully pulling the jumper straight out. See the *Grounding and Wiring Guidelines for PWM AC Drives*, publication DRIVES-IN001, for more information on ungrounded system installation.



ATTENTION: To avoid an electric shock hazard, verify that the voltage on the bus capacitors has discharged before removing/ installing jumpers. Measure the DC bus voltage at the +DC & – DC terminals of the Power Terminal Block. The voltage must be zero.

Table 1.D Jumper Removal

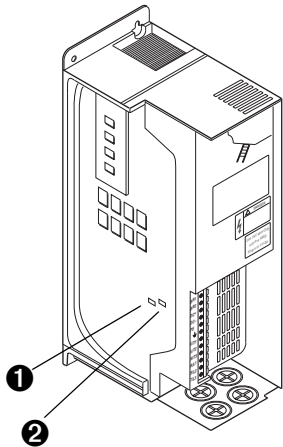
| Frames | Jumper | Component | Jumper Location | No. |
|--------|--------|----------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------|
| 1 | PEA | Common Mode Capacitors | Remove the Control Assembly and Cassette. Jumpers are located on the drive Power Board (see Figure 1.6). | ① |
| | PEB | MOV's | | ② |
| 2-4 | PEA | Common Mode Capacitors | Jumpers are located above the Power Terminal Block (see Figure 1.6). | ③ |
| | PEB | MOV's | | ④ |
| 5 | Wire | Common Mode Capacitors | Remove the I/O Cassette. The green/yellow jumper is located on the back of chassis in the area shown (see Figure 1.6). Disconnect, insulate and secure the wire to guard against unintentional contact with chassis or components. | ⑤ |
| | | MOV's Input Filter Capacitors | Note location of green/yellow jumper wire in Figure 1.6 . Disconnect, insulate and secure the wire guard against unintentional contact with chassis or components. | ⑥ |
| 6 | Wire | Common Mode Capacitors | Remove the wire guard from the Power Terminal Block. Disconnect the three green/yellow wires from the two "PE" terminals shown in Figure 1.4 . Insulate and secure the wires to guard against unintentional contact with chassis or components. | Please refer to Power Terminal Blocks, Frame 6 on page 1-15 . |
| | | MOV's | | |
| | | Input Filter Capacitors | | |



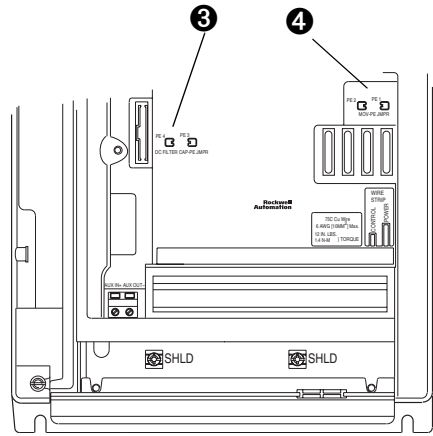
ATTENTION: The disconnecting MOV must be used on a grounded system.

Figure 1.6 Typical Jumper Locations

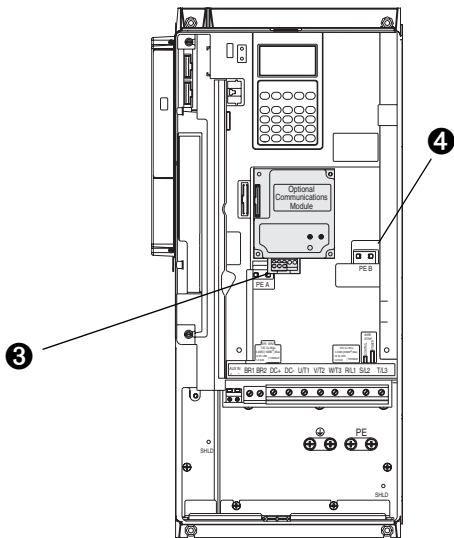
Frame 1
(Control Assembly & I/O
Cassette Removed)



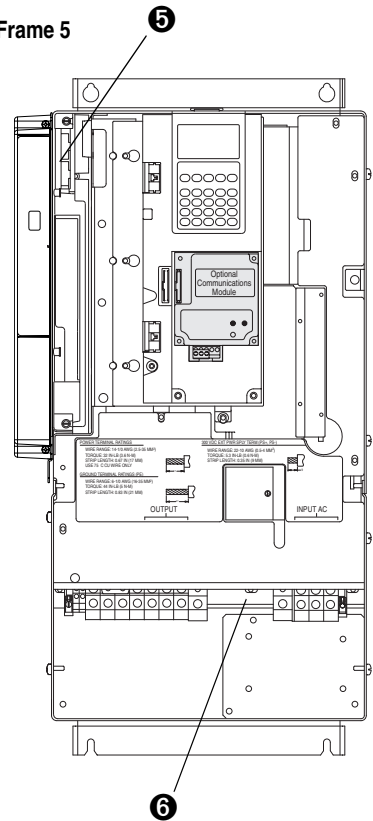
Frame 2



Frames 3 & 4



Frame 5



I/O Wiring

Important points to remember about I/O wiring:

- Always use copper wire.
- Wire with an insulation rating of 600V or greater is recommended.
- Control and signal wires should be separated from power wires by at least 0.3 meters (1 foot).
- 4100CCF3 Flex I/O cable for use with DriveLogix is 3 ft. maximum length.

Important: I/O terminals labeled “(–)” or “Common” are not referenced to earth ground and are designed to greatly reduce common mode interference. Grounding these terminals can cause signal noise.



ATTENTION: Hazard of personal injury or equipment damage exists when using bipolar input sources. Noise and drift in sensitive input circuits can cause unpredictable changes in motor speed and direction. Use speed command parameters to help reduce input source sensitivity.

Table 1.E Recommended Control Wire

| Type | Wire Type(s) | | Description | Insulation Rating |
|-----------------------------------------------------------------|------------------------------------------------------------------|---------------------------------------------------------------|--------------------------------------------------------------------------------------|-------------------------------|
| Digital I/O | Un-shielded | Per US NEC or applicable national or local code | – | 300V, 60° C (140° F), Minimum |
| | Shielded | Multi-conductor shielded cable such as Belden 8770(or equiv.) | 0.750 mm ² (18AWG), 3 conductor, shielded. | |
| Standard Analog I/O | Belden 8760/9460(or equiv.) | | 0.750 mm ² (18AWG), twisted pair, 100% shield with drain ⁽⁵⁾ . | 300V, 75-90 °C (167-194 °F) |
| Remote Pot | Belden 8770(or equiv.) | | 0.750 mm ² (18AWG), 3 cond., shielded | |
| Encoder/ Pulse I/O Less 30.5 m (100 ft.) | Combined: | Belden 9730 (or equivalent) ⁽¹⁾ | 0.196 mm ² (24AWG), individually shielded. | |
| Encoder/ Pulse I/O 30.5 m (100 ft.) to 152.4 m (500 ft.) | Signal: | Belden 9730/9728 (or equivalent) ⁽¹⁾ | 0.196 mm ² (24AWG), individually shielded. | |
| | Power: | Belden 8790 ⁽²⁾ | 0.750 mm ² (18AWG) | |
| | Combined: | Belden 9892 ⁽³⁾ | 0.330 mm ² or 0.500 mm ² ⁽³⁾ | |
| Encoder/ Pulse I/O 152.4 m (500 ft.) to 259.1 m (850 ft.) | Signal: | Belden 9730/9728 (or equivalent) ⁽¹⁾ | 0.196 mm ² (24AWG), individually shielded. | |
| | Power: | Belden 8790 ⁽²⁾ | 0.750 mm ² (18AWG) | |
| | Combined: | Belden 9773/9774 (or equivalent) ⁽⁴⁾ | 0.750 mm ² (18AWG), individually shielded pair. | |
| EMC Compliance | Refer to CE Conformity on page 1-29 for details. | | | |

⁽¹⁾ Belden 9730 is 3 individually shielded pairs (2 channel plus power). If 3 channel is required, use Belden 9728 (or equivalent).

⁽²⁾ Belden 8790 is 1 shielded pair.

⁽³⁾ Belden 9892 is 3 individually shielded pairs (3 channel), 0.33 mm² (22 AWG) plus 1 shielded pair 0.5 mm² (20 AWG) for power.

⁽⁴⁾ Belden 9773 is 3 individually shielded pairs (2 channel plus power). If 3 channel is required, use Belden 9774 (or equivalent).

⁽⁵⁾ If the wires are short and contained within a cabinet which has no sensitive circuits, the use of shielded wire may not be necessary, but is always recommended.

ATEX Approved Drives and Motors

For detailed information on using ATEX approved drives and motors, refer to [Appendix J](#).

Wiring the Main Control Board I/O Terminals

Terminal blocks TB1 and TB2 contain connection points for all inputs, outputs and standard encoder connections. Both terminal blocks reside on the Main Control Board.

Remove the terminal block plug from the socket, and make connections. *Do not use a tool for terminal block removal. Damage may occur if a tool is used.*

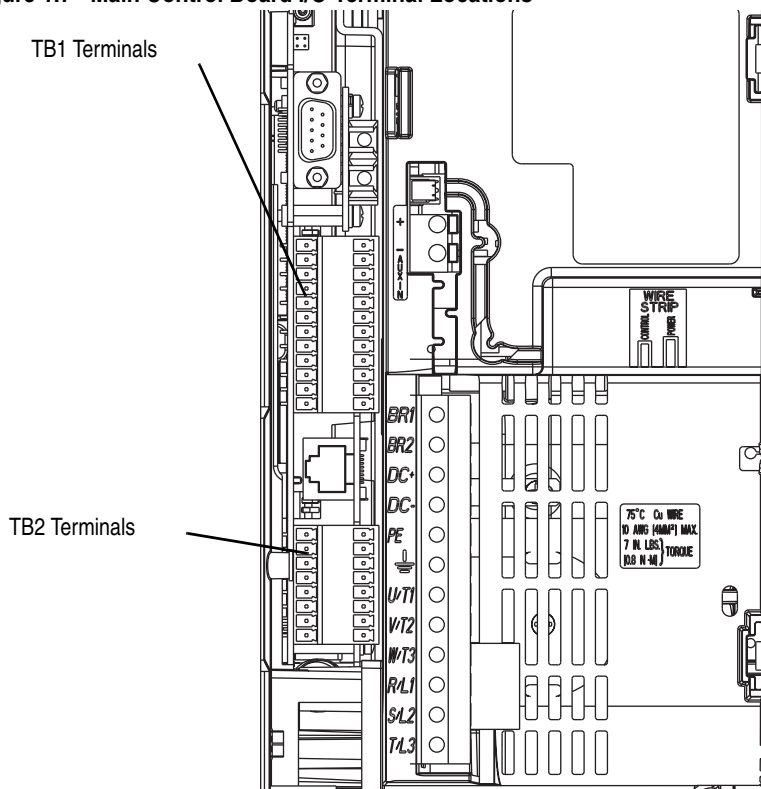
Important: For NEMA/UL Type 1 applications, all wiring must be routed through the conduit plate on the drive. Route any wires from the expanded cassette to the base cassette and out of the drive.

Reinstall the plug when wiring is complete.

Table 1.F Control & Encoder Terminal Block Specifications

| Name | Frame | Description | Wires Size Range ⁽¹⁾ | | Torque | |
|------------|-------|------------------------------|---------------------------------|---------------------------------|--------------------------|--------------------------|
| | | | Maximum | Minimum | Maximum | Recommended |
| I/O Blocks | 1-6 | Signal & Encoder connections | 1.5 mm ² (16 AWG) | .14 mm ² (28 AWG) | .25 N-m (2.2 lb.-in.) | .22 N-m (1.9 lb.-in.) |

⁽¹⁾ Maximum/minimum sizes the terminal block will accept - these are not recommendations.

Figure 1.7 Main Control Board I/O Terminal Locations

Auxiliary Power Supply (High Power Only)

You may use an auxiliary power supply to keep the 700S Control Assembly energized when input power is de-energized. This allows the Main Control Board, DriveLogix controller and any feedback option cards to continue operation. See *Power Terminal Block Specifications* for connection information. You must set bit 17 “Aux Pwr Sply” of Par 153 [Control Options] to enable this feature.

Table 1.G Auxiliary Power Supply Specifications

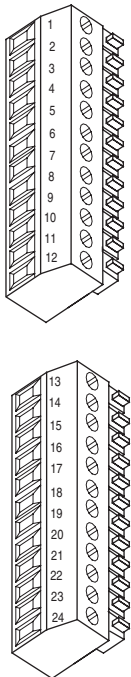
| Voltage | Current (Min) | Power (Min) |
|-----------------|---------------|-------------|
| 24V DC \pm 5% | 3 A | 75 W |

Important: For drives manufactured prior to June 2006, the Voltage Feedback board provides the bulk 24 volts for the High Horsepower Fiber Optic Interface board. If the auxiliary power supply (24 volts) is greater than the Voltage Feedback board (24 volts) then the switch mode power supply on the Voltage Feedback board will shut down. If the auxiliary power supply has an adjustable voltage, then the voltage should be lowered (23.75). This will allow the Voltage Feedback board power supply to supply the 24 volts. If the auxiliary power supply cannot be adjusted, then a 500 ohm resistor needs to be added to the Voltage Feedback board. In this case, please contact Drives Technical Support for details.

Hardware Enable Circuitry

By default, Digital Input 6 is configured for hardware enable input. This is for applications requiring the drive to be disabled *without* software interpretation. With the “HW Enable Jumper (Shunt)” on the pins closest to the PCB, Digital Input 6 is configured as a “dedicated” hardware enable. If this configuration is not required, the “HW Enable Jumper (Shunt)” may be moved to the out board pins, making Digital Input 6 user programmable via Par 830 [Dig In6 Sel].

Table 1.H TB1 Terminals



| Terminal | Signal | Factory Default | Description | Related Parameter |
|----------|-----------------------------|-----------------|-------------------------------------------------------------------------------------------------------------------------------|-------------------|
| 1 | Analog Input 1 Comm. | (Volt) | Bipolar, differential input, +/-10V, 0-20 mA, 13 bit + sign 20k Ohm impedance at Volt; 500 Ohm impedance at mA ⁽¹⁾ | 800 |
| 2 | Analog Input 1 (+/-) | | | |
| 3 | Shield | NA | Analog Input Shield | |
| 4 | Analog Input 2 Comm. | (Volt) | Bipolar, differential input, +/-10V, 0-20 mA, 13 bit + sign 20k Ohm impedance at Volt; 500 Ohm impedance at mA | 806 |
| 5 | Analog Input 2 (+/-) | | | |
| 6 | Analog Input 3 [NTC-] Comm. | (Volt) | Differential input, 0-10V, 10 bit (for motor control mode FVC2, this is the temperature adaptation input). | 812 |
| 7 | Analog Input 3 [NTC+] | | | |
| 8 | Shield | NA | Analog Output Shield | |
| 9 | Analog Output 1 (-) | (Volt) | Bipolar, differential output, +/-10V, 0-20 mA, 11 bit + sign 2k Ohm minimum load | 832, 833 |
| 10 | Analog Output 1 (+) | | | |
| 11 | Analog Output 2 (-) | (Volt) | | 839, 840 |
| 12 | Analog Output 2 (+) | | | |
| 13 | +10V Reference | NA | Rating: 20 mA maximum load (Recommend 5k Ohm pot) | |
| 14 | Reference Common | NA | | |
| 15 | -10V Reference | NA | | |
| 16 | Encoder A | NA | Normal current draw per channel: 20 mA | 230-233 |
| 17 | Encoder A (Not) | NA | | |
| 18 | Encoder B | NA | | |
| 19 | Encoder B (Not) | NA | | |
| 20 | Encoder Z | NA | | |
| 21 | Encoder Z (Not) | NA | 12 or 5V DC power supply for primary encoder interface | |
| 22 | Encoder Reference (+) | NA | | |
| 23 | Encoder Reference (-) | NA | Rating: 300 mA maximum | |
| 24 | Encoder Shield | NA | Connection point for encoder shield | |

⁽¹⁾ The analog inputs are not isolated. However, the analog inputs can be connected in series when using current mode. Note that at 20mA the voltage source must be capable of providing 10V dc at the drive terminals for one drive - - 20V dc is required for two drives and 30V dc is required for three drives.

Table 1.I TB2 Terminals

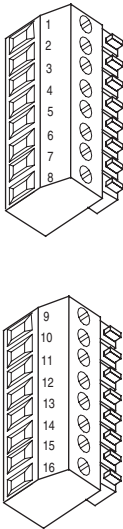
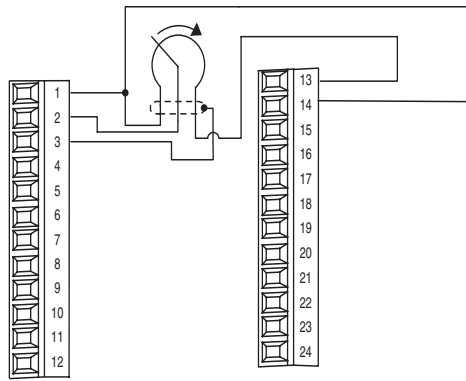
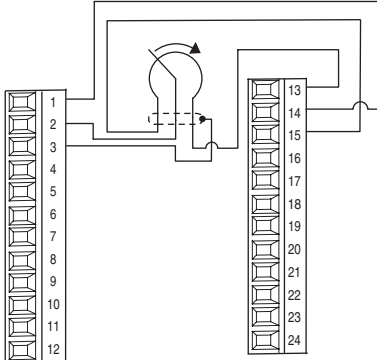
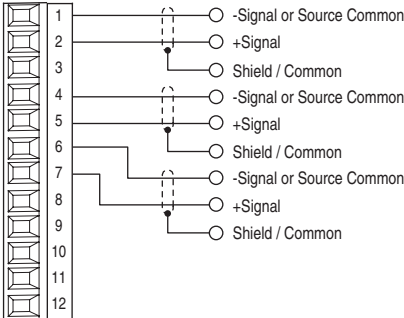
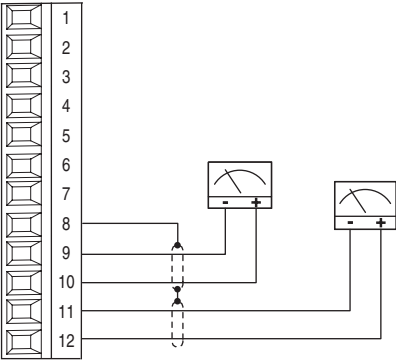
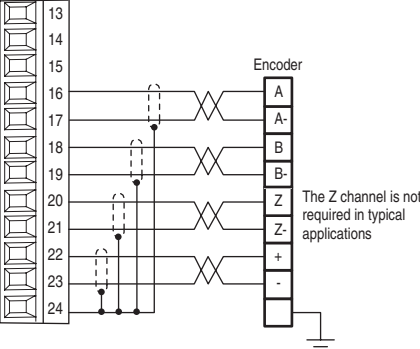
| | Terminal | Signal | Factory Default | Description | Related Parameter |
|-----------------------------------------------------------------------------------|----------|------------------------|-----------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------|
| | | | | | |
|  | 1 | 24V DC Common (-) | NA | Drive supplied 24V DC logic input power | 816, 847 |
| | 2 | 24V DC Source (+) | NA | Rating: 300 mA maximum load | |
| | 3 | Digital Output 1 | | 24V DC Open Collector (sinking logic) Rating: Internal Source = 150 mA max. External Source = 750 mA | |
| | 4 | Digital Output 1/2 Com | NA | Common for Digital Output 1 & 2 | 851, 852 |
| | 5 | Digital Output 2 | | 24V DC Open Collector (sinking logic) Rating: Internal Source = 150 mA max. External Source = 750 mA | |
| | 6 | Relay Output 3 (NC) | | Relay contact output | |
| | 7 | Relay Output 3 Com | NA | Rating: 115V AC or 24V DC = 2 A max. Inductive/Resistive | 856, 857 |
| | 8 | Relay Output 3 (NO) | | | |
| | 9 | Digital Input 1-3 Com | NA | Common for Digital Inputs 1-3 | |
| | 10 | Digital Input 1 | | High speed 12-24V DC sourcing Digital Input | 825 |
| | 11 | Digital Input 2 | | Load: 15 mA at 24V DC | 826 |
| | 12 | Digital Input 3 | | Load: 15 mA at 24V DC sourcing | 827 |
| | 13 | Digital Input 4-6 Com | NA | Common for Digital Inputs 4-6 | 828, 829 |
| | 14 | Digital Input 4 | | Load: 10 mA at 24V DC sinking/sourcing | |
| | 15 | Digital Input 5 | | Load: 7.5 mA at 115V AC | |
| | 16 | Digital Input 6 | HW Enable | Note: The 115 VAC Digital Inputs can withstand 2 milliamps of leakage current without turning on. If an output device has a leakage current greater than 2 milliamps a burden resistor is required. A 68.1K ohm resistor with a 0.5 watt rating should be used to keep the 115 VAC output below 2 milliamps. | 830 |

Table 1.J TB1 Terminals — Analog Wiring Examples

| Input/Output | Connection Example | Required Parameter Changes |
|--------------------|-----------------------------------------------------------------------------------------------------------------------------|----------------------------|
| 0-10V Analog Input | 0-10V Analog Input - Internal Source  | NA |

| Input/Output | Connection Example | Required Parameter Changes |
|---------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 0-10V Analog Input | 0-10V Analog Input - Bi-Polar  | NA |
| 0-10V Analog Input | 0-10V Analog Input - External Source  | NA |
| Analog Output - +/-10V DC Used to drive analog meters displaying speed and current | 0-10V Analog Output  | Using Analog Out 1, -10V to + 10V to meter Motor RPM and direction: <ul style="list-style-type: none"> Send the data to the Analog Output Par 833 [Anlg Out1 Real] (the destination) linked to Par 71 [Filtered SpdFdbk] (the source) Scale the Output to the source parameter Par 835 [Anlg Out1 Scale] = 175 (Par 4 [Motor NP RPM] = 1750 / 10V) Using Analog Out 2, -10V to + 10V to meter Motor Current: <ul style="list-style-type: none"> Send the data to the Analog Output Par 840[Anlg Out2 Real] (the destination) linked to Par 308 [Output Current] (the source) Scale the Output to the source parameter Par 842 [Anlg Out2 Scale] = xx (Par 2 [Motor NP FLA] / 10 V Output) |
| Primary Encoder Interface - Supports 5V DC/12V DC differential encoders with internal power supply. | Primary Encoder - Internal Supply  | Using Encoder 0 as speed feedback: <ul style="list-style-type: none"> Par 222 [Mtr Fdbk Sel Pri] = 0 "Encoder 0" (default) Par 232 [Encoder0 PPR] = Pulses/Rev for installed encoder |

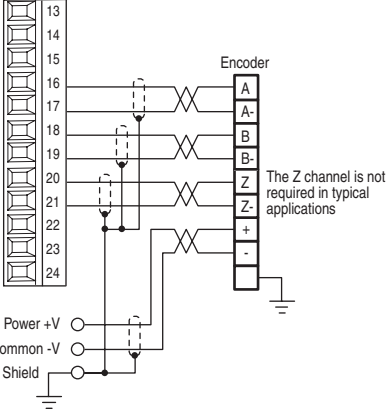
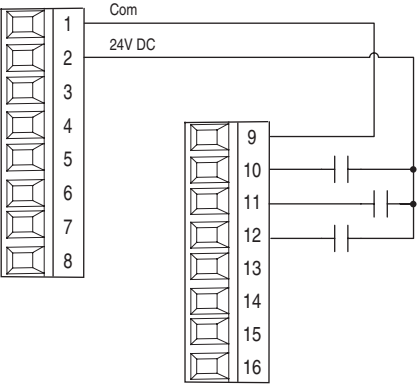
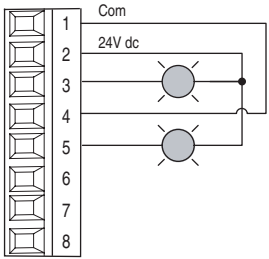
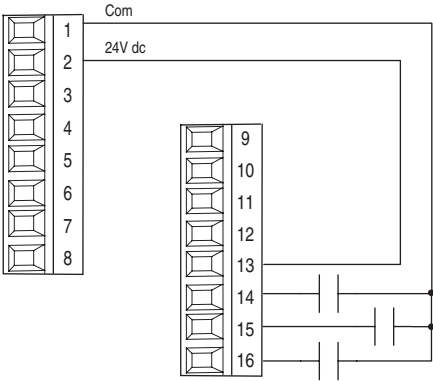
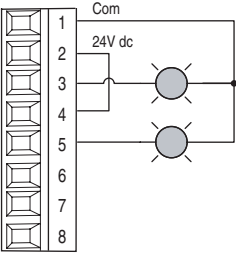
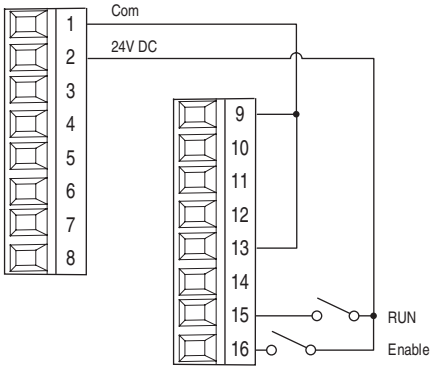
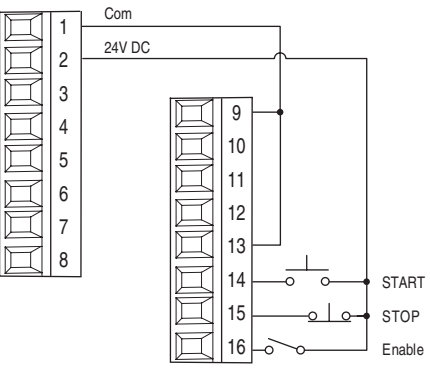
| Input/Output | Connection Example | Required Parameter Changes |
|--------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------|
| | <p>Primary Encoder - External Supply</p>  <p>The Z channel is not required in typical applications</p> | NA |

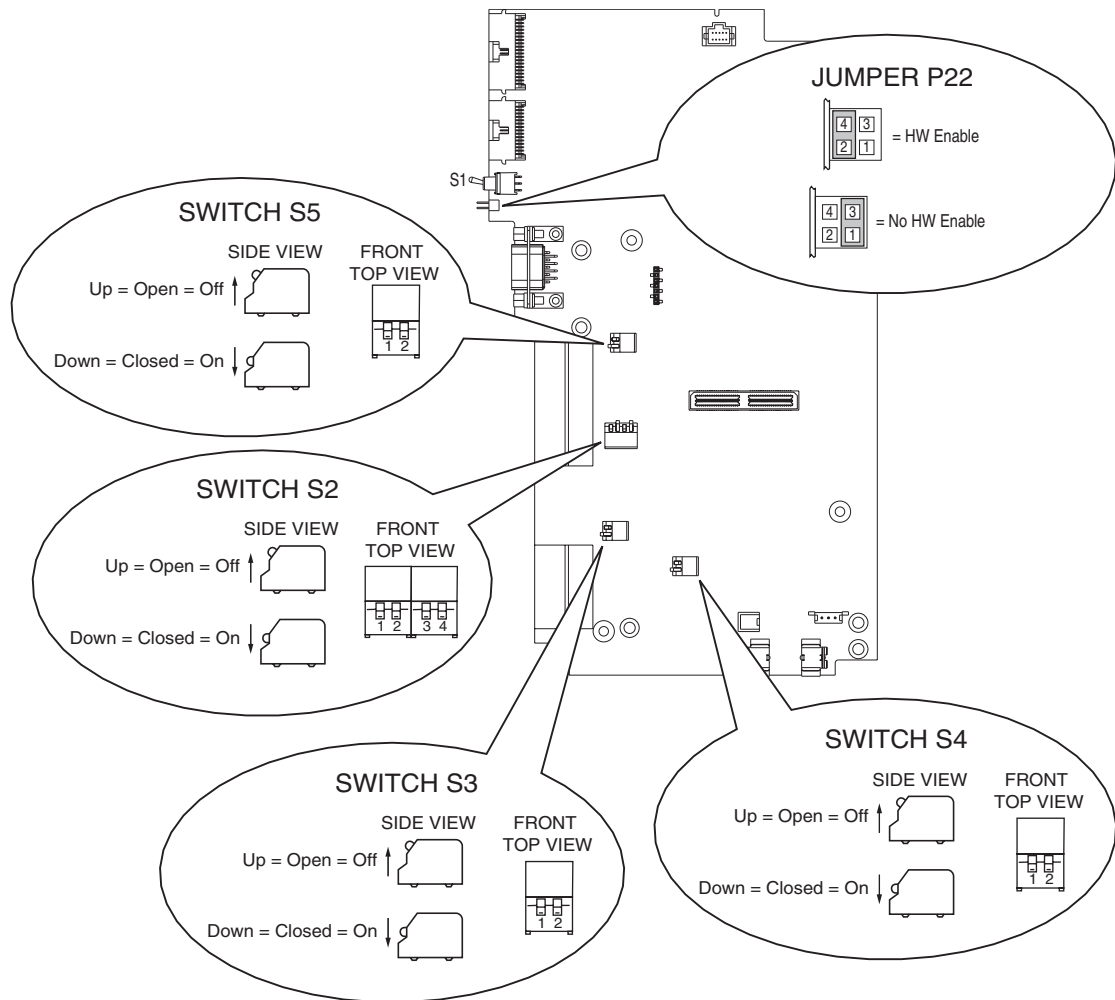
Table 1.K TB2 - Digital Wiring Examples

| Input/Output | Connection Example | Sourcing and Sinking Definitions |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Digital Inputs used for enable and precharge control. <i>Note:</i> 24V DC Supply - supports only on-board digital inputs. Do not use for circuits outside the drive. <i>Note:</i> The factory default for all Digital Inputs is 24V. To use 115V on Digital Inputs 4-6 see Table 1.L . <i>Note:</i> Digital Inputs 1-3 are 12 - 24V DC. | <p>Sourcing Digital Inputs - Internal Power Supply</p>  <p>Sourcing Digital Outputs - Internal Power Supply</p>  <p>Sinking Digital Inputs - Internal Power Supply</p>  <p>Sinking Digital Output - Internal Power Supply</p>  | <p>The digital inputs and digital outputs of the PowerFlex 700S AC drive support Sourcing or Sinking configuration. Typically, digital inputs are sourcing devices and digital outputs are sinking devices. The following definitions apply throughout this section:</p> <ul style="list-style-type: none">• Sourcing a Digital Input - The digital input common (return) is connected to the power supply common. Applying a positive voltage to the digital input will cause it to activate (pull up).• Sinking a Digital Input - The digital input common (return) is connected to the power supply positive voltage. Applying 0V or common to the digital input will cause it to activate (pull down).• Sourcing a Digital Output - The digital output common (return) is connected to the power supply common. The device to be controlled by the digital output is connect to the positive voltage and the device common is connected to the digital output.• Sinking a Digital Output - The digital output common (return) is connected to the power supply positive voltage. The digital output is connect to the device to be controlled and the device common is connected to the power supply common. <p><i>Note:</i> Digital Inputs 1-3 can only be configured as sourcing inputs. Digital Inputs 4-6 can be configured as sourcing or sinking inputs.</p> |

| Input/Output | Connection Example | Required Parameter Changes |
|---------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Digital Inputs 24V DC | Sourcing Digital Inputs - Internal Power Supply, 2-Wire Control  | Required Parameter Changes <ul style="list-style-type: none"> • Set Par 829 [Dig In5 Sel] to value 7 - "Run" • Par 153 [Control Options], bit 8 "3WireControl" will automatically be OFF (0) for 2-wire control • Set Par 168 [Normal Stop Mode] for the desired stopping mode: 0 = Ramp Stop 1 = CurLim Stop 2 = Coast Stop |
| Digital Inputs 24V DC | Sourcing Digital Inputs- Internal Power Supply, 3-Wire  | <ul style="list-style-type: none"> • Set Par 829 [Dig In5 Sel] to value 14 "Normal Stop" • Set Par 828 [Dig In4 Sel] to value 5 - "Start" • Par 153 [Control Options], bit 8 "3WireControl" will automatically be ON (1) for 3-wire control • Set Par 168 [Normal Stop Mode] for the desired stopping mode: 0 = Ramp Stop 1 = CurLim Stop 2 = Coast Stop |

Main Control Board I/O Configuration Settings

Figure 1.8 Main Control Board Dip Switches





ATTENTION: The DIP switches for Digital Inputs 4 - 6 are set to 24V DC at the factory. If you are running a 115V AC input application, the switches must be set as indicated below before applying power to the drive or damage to the Main Control board may occur.

Table 1.L Switch Settings

| Function | Default | Switch | Open | Closed | Notes |
|-------------------------------|--------------------|-----------------|--------------------|--------------------|------------------------------------------|
| HW Enable Jmp | pin 2-4 HW Enbl | SHUNT Jumper | pin 2-4 HW Enbl | pin 1-3 No Enbl | No Jmpr = HW Enbl See window for Cnfg |
| Analog Input 1 | Voltage | S5-2 | Voltage | Current | Change with Power Off |
| Analog Input 2 | Voltage | S5-1 | Voltage | Current | Change with Power Off |
| Digital Inputs 4-6 Voltage | 24V DC | S4-1, S4-2 | 115V AC | 24V DC | Change with Power Off |
| Digital Input 1 Voltage | 24V DC | S3-1 | 24V DC | 12V DC | Change with Power Off |
| Digital Input 2 Voltage | 24V DC | S3-2 | 24V DC | 12V DC | Change with Power Off |
| Encoder Supply Voltage | 12V DC | S2-4 | 12V DC | 5V DC | Change with Power Off |
| Encoder Signal A Voltage | 12V DC | S2-1 | 12V DC | 5V DC | Typically, set all switches the same |
| Encoder Signal B Voltage | 12V DC | S2-2 | 12V DC | 5V DC | |
| Encoder Signal Z Voltage | 12V DC | S2-3 | 12V DC | 5V DC | |
| Function | Down | Switch | Up | Center | Notes |
| DriveLogix Processor | RUN | S1 | Prog | Remote | Processor Mode |

Please note there are two separate values for an encoder.

CE Conformity

Conformity with the Low Voltage (LV) Directive and Electromagnetic Compatibility (EMC) Directive has been demonstrated using harmonized European Norm (EN) standards published in the Official Journal of the European Communities. PowerFlex drives comply with the EN standards listed below when installed according to the User and Reference Manuals.

Important: CE Certification testing has not been performed on 600V class drives, frames 1...4.

Declarations of Conformity are available online at:

<http://www.ab.com/certification/ce/docs>.

Low Voltage Directive (73/23/EEC)

- EN50178 Electronic equipment for use in power installations.

EMC Directive (89/336/EEC)

- EN61800-3 Adjustable speed electrical power drive systems Part 3: EMC product standard including specific test methods.

General Notes

- If the adhesive label is removed from the top of the drive, the drive must be installed in an enclosure with side openings less than 12.5 mm (0.5 in.) and top openings less than 1.0 mm (0.04 in.) to maintain compliance with the LV Directive.
- The motor cable should be kept as short as possible in order to avoid electromagnetic emission as well as capacitive currents.
- Use of line filters in ungrounded systems is not recommended.
- PowerFlex drives may cause radio frequency interference if used in a residential or domestic environment. The user is required to take measures to prevent interference, in addition to the essential requirements for CE compliance listed below, if necessary.
- Conformity of the drive with CE EMC requirements does not guarantee an entire machine or installation complies with CE EMC requirements. Many factors can influence total machine/installation compliance.
- PowerFlex drives can generate conducted low frequency disturbances (harmonic emissions) on the AC supply system. More information regarding harmonic emissions can be found in the *PowerFlex Reference Manual Vol. 2*.

Essential Requirements for CE Compliance

Conditions 1-6 listed below must be satisfied for PowerFlex drives to meet the requirements of EN61800-3.

1. Standard PowerFlex 700S CE compatible drive.
2. Review important precautions/attentions statements throughout this document before installing drive.
3. Grounding as described on [page 1-5](#).
4. Output power, control (I/O) and signal wiring must be braided, shielded cable with a coverage of 75% or better, metal conduit, or have shielding/cover with equivalent attenuation.
5. All shielded cables should terminate with proper shielded connector.
6. Output power cable to motor must not exceed lengths in [Table 1.M](#)

Table 1.M PowerFlex 700S EN61800-3 EMC Compatibility⁽¹⁾

| Frame(s) | Second Environment | | First Environment Restricted Distribution | |
|----------|---------------------------------------|--|-------------------------------------------|--------------------------|
| | Restrict Motor Cable to 30 m (98 ft.) | | Restrict Motor Cable to 150 m (492 ft.) | |
| | Any Drive and Option | | Any Drive and Option | External Filter Required |
| 1 - 6 | ✓ | | ✓ | ✓ |

(1) External filters for First Environment installations and increasing motor cable lengths in Second Environment installations are available. Roxburgh models KMFA (RF3 for UL installations) and MIF or Schaffner FN3258 and FN258 models are recommended. Refer to <http://www.deltron-emcon.com> and <http://www.mtecorp.com> (USA) or <http://www.schaffner.com>, respectively.

Start-Up

This chapter describes how to start-up the PowerFlex 700S Phase II drive. Refer to [Appendix D](#) for a brief description of the Human Interface Module (HIM).

| For Information on ... | See Page... |
|--------------------------------------------|---------------------|
| Prepare for Drive Start-Up | 2-1 |
| Assisted Start-Up | 2-5 |



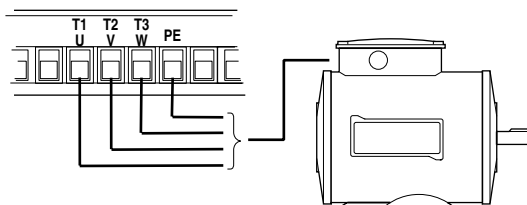
ATTENTION: Power must be applied to the drive to perform the following start-up procedure. Some of the voltages present are at incoming line potential. To avoid electric shock hazard or damage to equipment, only qualified service personnel should perform the following procedure. Thoroughly read and understand the procedure before beginning. If an event does not occur while performing this procedure, **Do Not Proceed.** **Remove Power** including user supplied control voltages. User supplied voltages may exist even when main AC power is not applied to then drive. Correct the malfunction before continuing.

Prepare for Drive Start-Up

Before Applying Power to the Drive

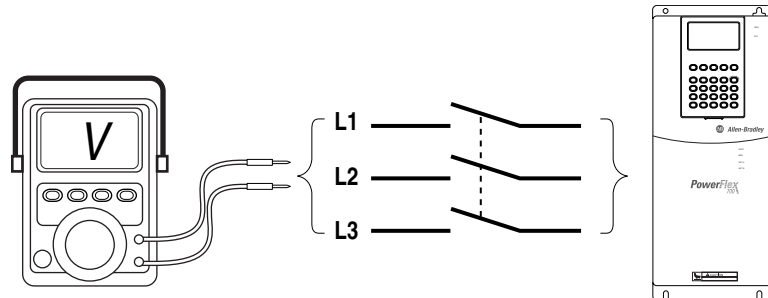
Important: If you have a DriveLogix application, you must first connect the battery before starting this section.

- ❑ 1. Confirm that motor wires are connected to the correct terminals and are secure. Confirm Frame 5 & 6 transformer connections (refer to [page 1-10](#)).



- ❑ 2. If an encoder is used, confirm the encoder wires are connected to the correct terminals and are secure (refer to [Table 1.H on page 1-22](#)).
- ❑ 3. Confirm that all control inputs are connected to the correct terminals and are secure.

- ❑ 4. Verify that AC line power at the disconnect device is within the rated value of the drive.
- ❑ 5. Verify that the control power voltage is correct.



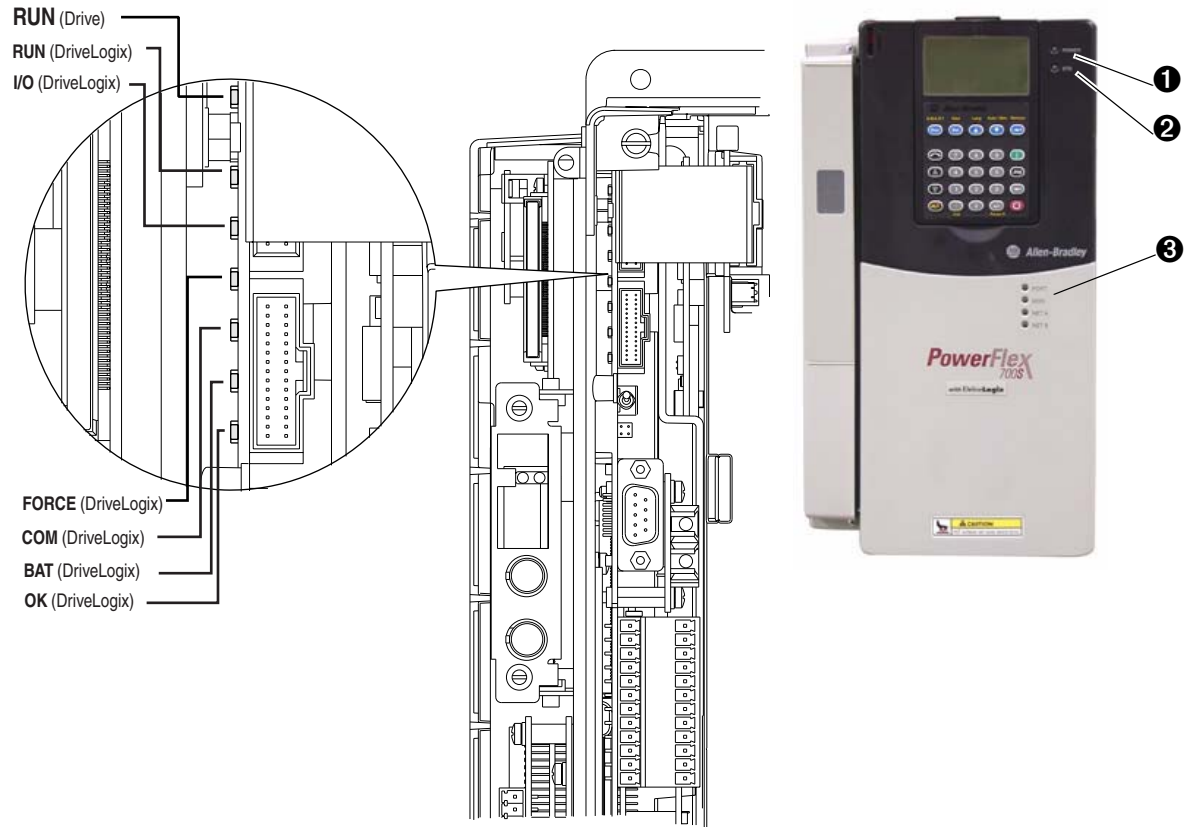
The remainder of this procedure requires that a HIM be installed. If an operator interface is not available, remote devices should be used to start-up the drive.

If the DriveLogix option is not present the associated indicators will not be present. The RUN LED and the controller LEDs are only operational when the drive is energized. These LEDs are only visible when the drive door is open or when viewed from the HIM or an application program (e.g., DriveExplorer™) in parameter 554 [LED Status]. This feature is only available with DriveLogix version 15.03 or later.



ATTENTION: The RUN LED and the controller LEDs are only operational when the drive is energized and only visible with the drive door open. Servicing energized equipment can be hazardous. Severe injury or death can result from electrical shock, burn or unintended actuation of controlled equipment. Follow Safety related practices of NFPA 70E, *ELECTRICAL SAFETY FOR EMPLOYEE WORKPLACES*. DO NOT work alone on energized equipment!

Applying Power to the Drive



- ❑ 6. Apply AC power and control voltages to the drive. Examine the *Power (PWR)* LED.

Table 2.A Drive Status Indicator Descriptions

| | | # | Name | Color | State | Description |
|-------|------------------|-----|--------------|-------------------------------------------------------|----------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------|
| DRIVE | Power Structure | ❶ | PWR (Power) | Green | Steady | Illuminates when power is applied to the drive. |
| | | ❷ | STS (Status) | Green | Flashing | Drive ready, but not running & no faults are present. |
| | | | | | Steady | Drive running, no faults are present. |
| | | | | Yellow | Flashing | When running, a type 2 (non-configurable) alarm condition exists, drive continues to run. When stopped, a start inhibit exists and the drive cannot be started. |
| | | | | | Steady | A type 1 (user configurable) alarm condition exists, but drive continues to run. |
| | | | | Red | Flashing | A fault has occurred. |
| | | | | | Steady | A non-resettable fault has occurred. |
| | | | | Red / Yellow | Flashing Alternately | The drive is in flash recovery mode. The only operation permitted is flash upgrade. |
| | Control Assembly | ❸ | PORT | | | Status of DPI port internal communications (if present). |
| | | | MOD | Refer to the <i>Communication Adapter User Manual</i> | | Status of communications module (when installed). |
| | | | NET A | | | Status of network (if connected). |
| | | | NET B | | | Status of secondary network (if connected). |
| | | (1) | SYNCHLINK | Green | Steady | The module is configured as the time keeper. or The module is configured as a follower and synchronization is complete. |
| | | | | Green | Flashing | The follower(s) are not synchronized with the time keeper. |
| | | | | Red | Flashing | The module is configured as a time master on SynchLink and has received time information from another time master on SynchLink. |
| | | | ENABLE | Green | On | The drive's enable input is high. |
| | | | | Green | Off | The drive's enable input is low. |
| | | | | | | |

(1) SynchLink LEDs are located on the SynchLink daughtercard on the main circuit board in the control cassette.

- ❑ **7. Examine the Status (STS) LED.** Verify that it is flashing green or that bit 1 “Sts Ready” of parameter 554 [LED Status] is set when viewed from the HIM or an application program. If it is not in this state, check the following possible causes and take the necessary corrective action.

Table 2.B Common Causes of a Run Inhibit

| Examine Par 156 - Run Inhibit Status | | |
|---------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------|
| bit | Description | Action |
| 1 | No power is present at the Enable Terminal TB2 - 16 | Apply the enable |
| 2, 3, 4 | A stop command is being issued | Close all stop inputs |
| 5 | Power loss event is in progress, indicating a loss of the AC input voltage | Restore AC power |
| 6 | Data supplied by the power structure EEPROM is invalid or corrupt. | Cycle power. If problem persists, replace the power structure. |
| 7 | Flash Update in Progress | Complete Flash Procedures |
| 8 | Drive is expecting a Start Edge and is receiving a continuous signal. | Open all start buttons and remove all start commands |
| 9 | Drive is expecting a Jog Edge and is receiving a continuous signal. | Open all jog buttons and remove all jog commands |
| 10 | A conflict exists between the Encoder PPR programming (<i>Par 232 or 242</i>) and the encoder configuration for edge counts (<i>Par 233, bits 4 & 5</i>). | Verify encoder data and reprogram |
| 11 | The drive cannot precharge because a precharge input is programmed and no signal is present. | Reprogram the input or close the precharge control contact. |

| | | | |
|----|-----------------------|------------------------------------------------------------|------------------------------------------------------------------------------------------------|
| 12 | Digital Configuration | Start input configured but stop not configured | Program <i>Par 825-830</i> to include a stop button, rewire the drive |
| | | Run input configured but control options do not match | Program <i>Par 153</i> , Bit 8 to "0" (2 wire control) |
| | | Start input configured but control options do not match | Program <i>Par 153</i> , Bit 8 to "1" (3 wire control) |
| | | Multiple inputs configured as Start or Run | Reprogram <i>Par 825-830</i> so multiple starts, multiple runs or any combination do not exist |
| | | Multiple inputs configured as Jog1 | Reprogram <i>Par 825-830</i> so only (1) is set to Jog1 |
| | | Multiple inputs configured as Jog2 | Reprogram <i>Par 825-830</i> so only (1) is set to Jog2 |
| | | Multiple inputs configured as Fwd/Rev | Reprogram <i>Par 825-830</i> so only (1) is set to Fwd/Rev |
| 14 | | Invalid Feedback Device for Permanent Magnet Motor Control | Set <i>Par 222</i> to Value 5 (FB Opt Port0) |

Table 2.C Common Start-Up Faults

| Fault | Description | Action |
|-------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------|
| Encoder Loss | One of the following has occurred on an encoder: <ul style="list-style-type: none"> missing encoder (broken wire) quadrature error phase loss | Reconnect encoder or replace encoder. |
| Motor Overload | A motor overload is pending. | Enter correct motor nameplate full load amps. <i>Par 2</i> [Motor NP FLA] or reduce excess load. |
| Motor Poles Fault | The poles of the motor do not match its rating. | Enter correct motor nameplate information. <i>Par 4</i> [Motor NP RPM] |

If any digital input is configured to Stop - CF (CF=Clear Faults) verify the signal is present or the drive will not start. Refer to [Chapter 4](#) for a list of potential digital input conflicts.

If a fault code appears, refer to [Chapter 4](#).

The STS LED should be flashing green or bit 1 "Sts Ready" of parameter 554 [LED Status] should be set at this point.

8. Proceed to the "Assisted Start-Up" routine below.


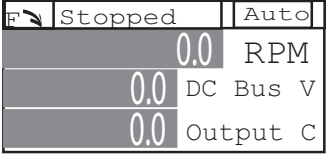



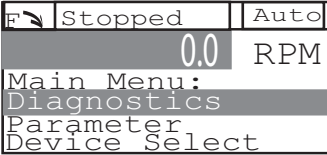

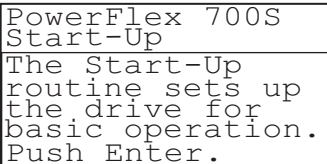
Assisted Start-Up

This routine prompts you for information needed to start-up a drive for most applications, such as line and motor data, commonly adjusted parameters and I/O.

Important: When using the Start-Up Assistant, always exit the Assistant before cycling power on the drive. Failure to exit may leave unwanted settings active in the drive configuration.

If, after exiting the Start-Up Assistant, external sources inhibit drive start, check *Par 671* [Start Mask].

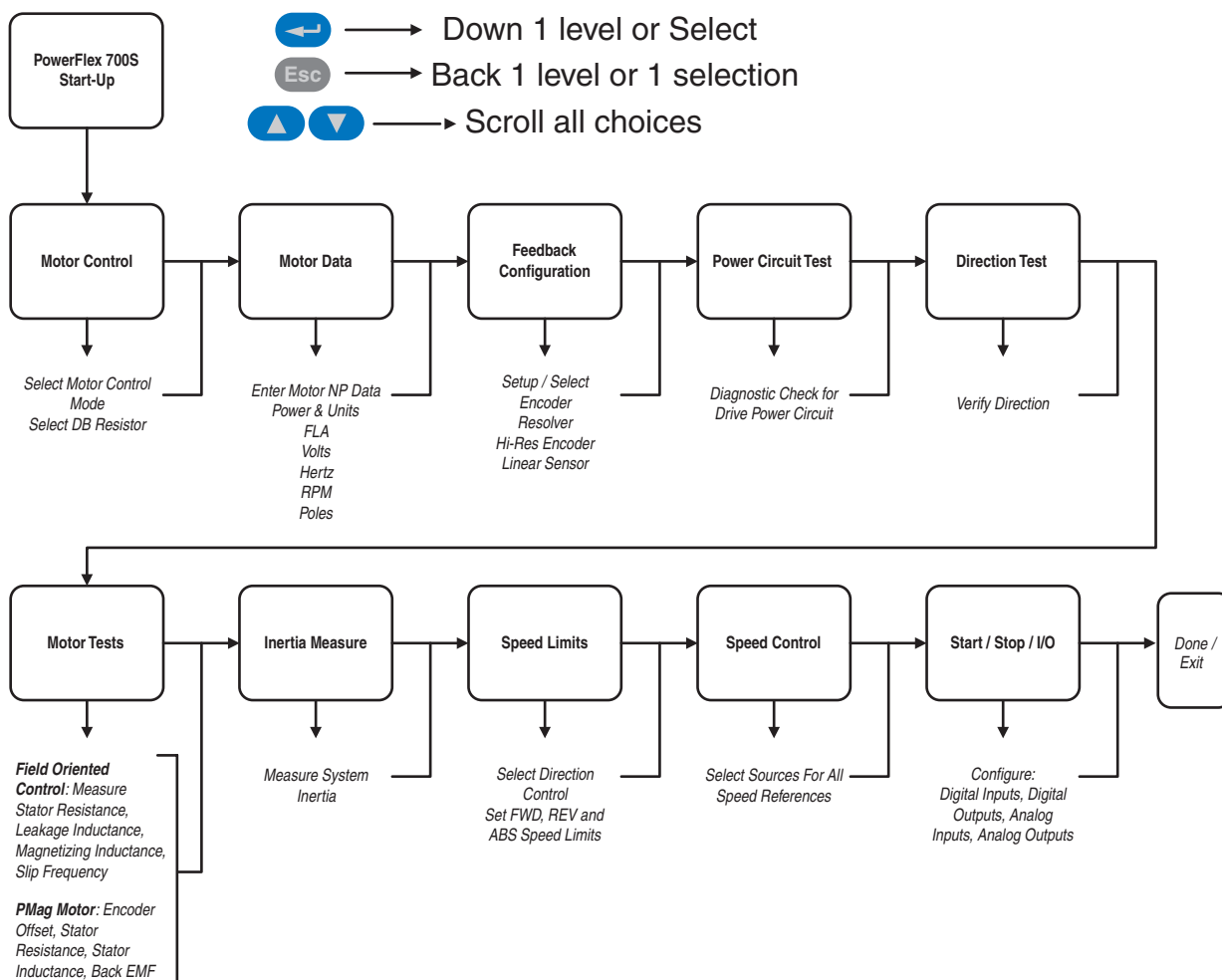
The assisted start-up routine asks simple yes or no questions and prompts you to input required information. Access Assisted Start-Up by selecting “Start-Up” from the Main Menu.

| Step | Key(s) | Example LCD Displays |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| 1. To exit the User Display screen, Press Esc. |  |  |
| 1. In the Main Menu, use the Down Arrow to scroll to “Start Up” 2. Press Enter. TIP: Throughout the Start-Up Routine many screens have more selection than shown. Use the arrow keys to scroll through all the menu options. |    |  |
| 1. Follow the instructions on the screen to complete the Start-Up. |  |  |

Important: If using a HIM the following functions are not available:

- Alt-Man
- Alt-Lang
- Alt-SMART

Figure 2.1 Start-Up Menu



Notes:

Programming and Parameters

This chapter provides a complete listing and description of the PowerFlex[®] 700S Phase II drive parameters. The parameters can be programmed (viewed/edited) using a Human Interface Module (HIM). Refer to [HIM Overview on page D-1](#) for information on using the HIM to view and edit parameters. As an alternative, programming can also be performed using DriveTools[™] software and a personal computer.

| For information on... | See page |
|------------------------------------------------------|-----------------------|
| About Parameters | 3-1 |
| How Parameters are Organized | 3-3 |
| Parameter Data in Linear List Format | 3-15 |
| Parameter Cross Reference By Name | 3-117 |


About Parameters


To configure a drive module to operate in a specific way, certain drive parameters may have to be configured appropriately. Three types of parameters exist:

- **ENUM Parameters**
These parameters allow a selection from 2 or more items. The LCD HIM will display a text message for each item.
- **Bit Parameters**
These parameters have individual bits associated with features or conditions. If the bit is 0, the feature is off or the condition is false. If the bit is 1, the feature is on or the condition is true.
- **Numeric Parameters**
These parameters have a single numeric value (i.e. 0.1 Volts).

The example on the following page shows how each parameter type is presented in this manual.

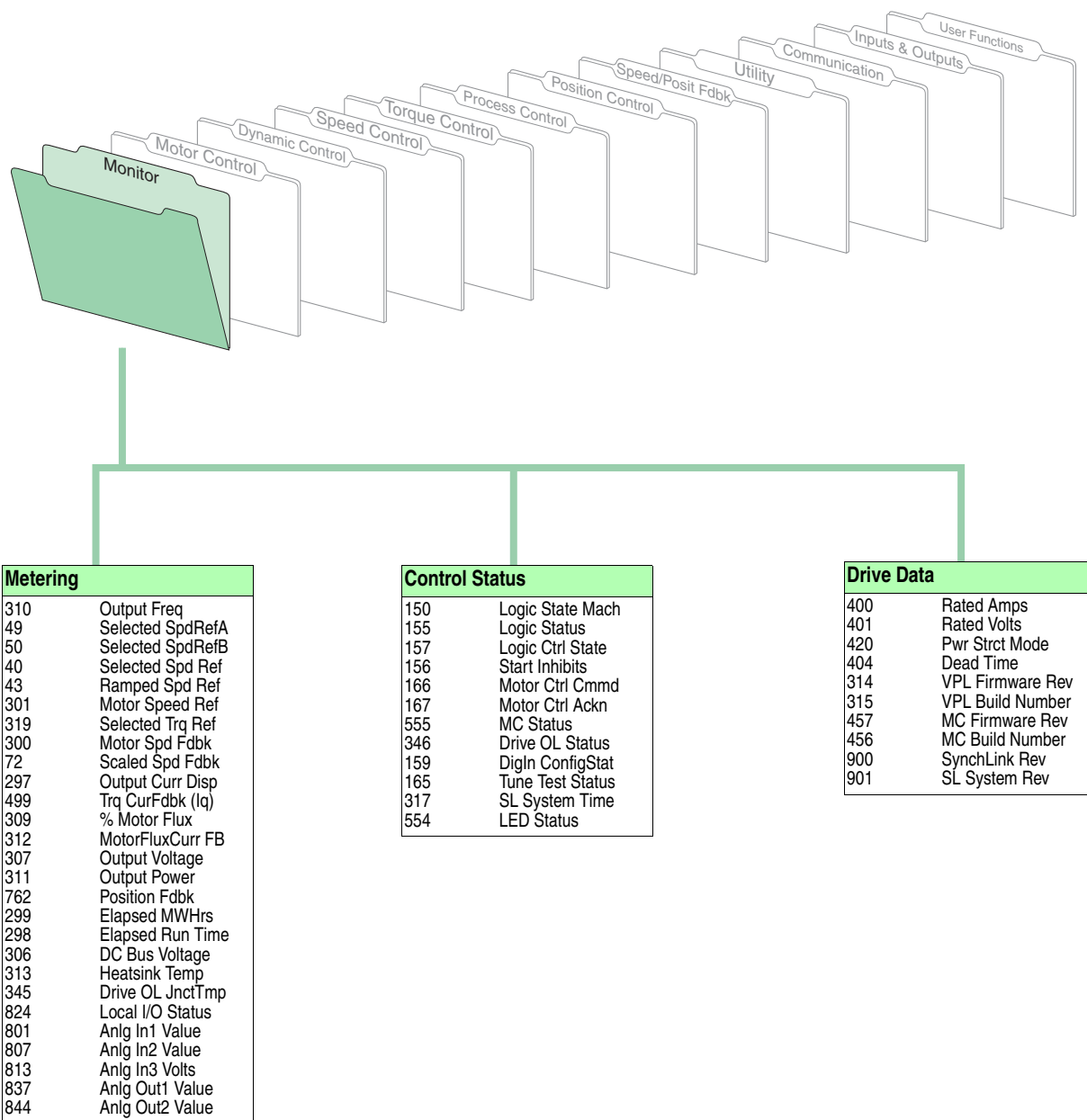
Table 3.A Table Explanation

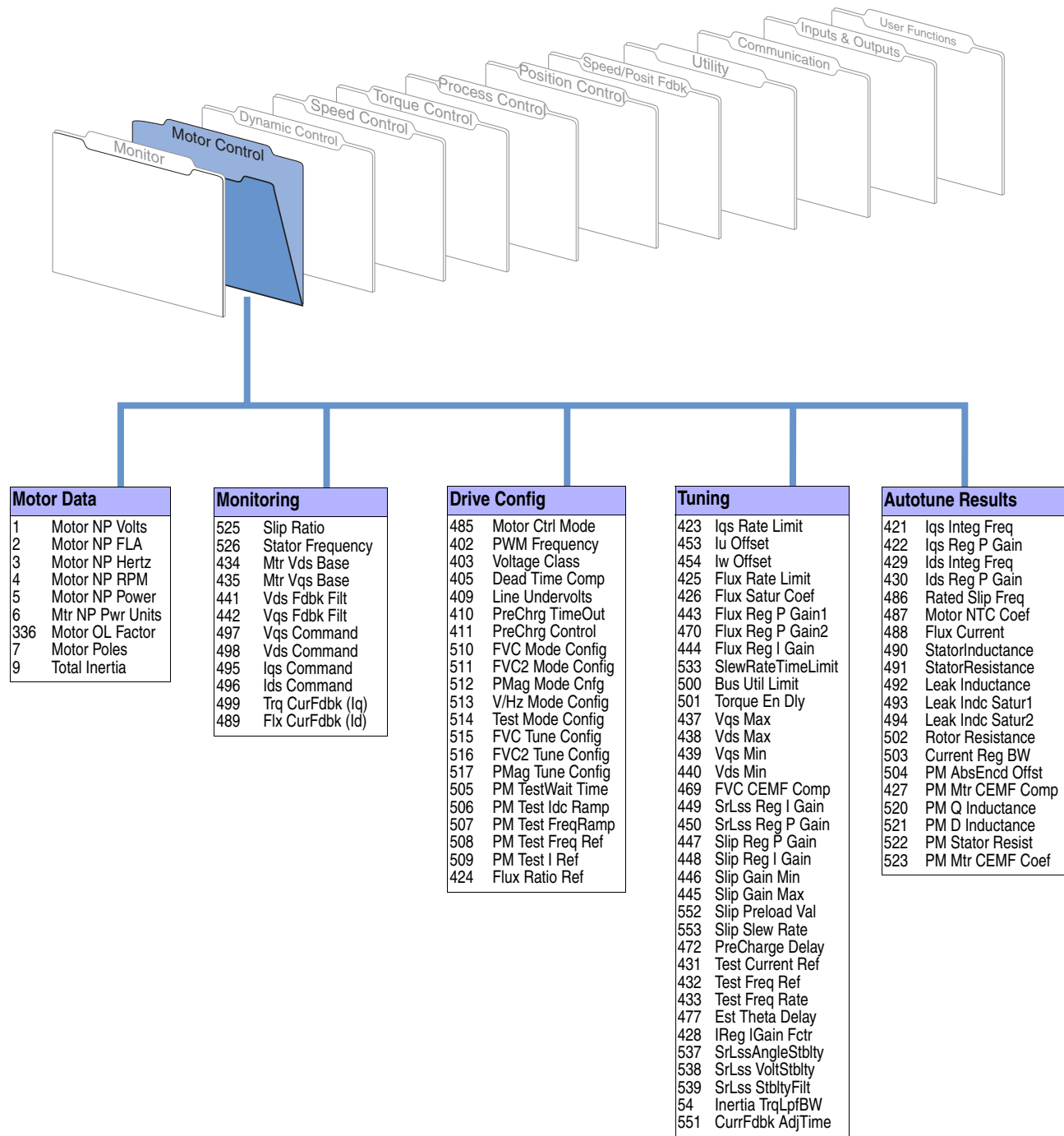
| ① | ② | ③ | Linkable | Read-Write | Data Type | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|---------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------|-------------|----------------|--------------|-------------|------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|---------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|-----|----|----|----|----|----|----|---|---|---|---|---|---|---|---|---|---|--|--|--|
| No. | Name Description | Values | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 151 | Logic Command The controller-drive interface (as defined by the Controller Communication Format) sets bits to enable and disable various functions and algorithms. Bits that are changed here are reflected in Par 152 [Applied LogicCmd]. Note: Bits 4 through 9 in Logic Command are NOT recalled from Control EEPROM. They will be cleared upon drive powerup or following an EEPROM recall operation. | <table><tr><td>Options</td><td>PI Trim Rst</td><td>PI Trim Hold</td><td>Position En</td><td>PI Trim En</td><td>Frict Comp</td><td>Inertia Comp</td><td>Ext Flt/Alm</td><td>Reserved</td><td>Reserved</td><td>SReg IntgRst</td><td>SReg IntgHld</td><td>SpdRamp Hold</td><td>Time Axis En</td><td>TachLoss Rst</td><td>Spd S Crv En</td><td>SpdRamp Dsbl</td></tr><tr><td>Default</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td></tr><tr><td>Bit</td><td>15</td><td>14</td><td>13</td><td>12</td><td>11</td><td>10</td><td>9</td><td>8</td><td>7</td><td>6</td><td>5</td><td>4</td><td>3</td><td>2</td><td>1</td><td>0</td></tr></table> <div>0 = False 1 = True</div> | Options | PI Trim Rst | PI Trim Hold | Position En | PI Trim En | Frict Comp | Inertia Comp | Ext Flt/Alm | Reserved | Reserved | SReg IntgRst | SReg IntgHld | SpdRamp Hold | Time Axis En | TachLoss Rst | Spd S Crv En | SpdRamp Dsbl | Default | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | Bit | 15 | 14 | 13 | 12 | 11 | 10 | 9 | 8 | 7 | 6 | 5 | 4 | 3 | 2 | 1 | 0 | | | |
| Options | PI Trim Rst | PI Trim Hold | Position En | PI Trim En | Frict Comp | Inertia Comp | Ext Flt/Alm | Reserved | Reserved | SReg IntgRst | SReg IntgHld | SpdRamp Hold | Time Axis En | TachLoss Rst | Spd S Crv En | SpdRamp Dsbl | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Default | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Bit | 15 | 14 | 13 | 12 | 11 | 10 | 9 | 8 | 7 | 6 | 5 | 4 | 3 | 2 | 1 | 0 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 110 | Spd/Torq ModeSel Selects the source for the drive torque reference. | Default: 1 = "Speed Reg" Options: 0 = "Zero Torque" 4 = "Max Spd/Torq" 1 = "Speed Reg" 5 = "Sum Spd/Torq" 2 = "Torque Ref" 6 = "AbsMn Spd/Tq" 3 = "Min Spd/Torq" | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 4 |  Motor NP RPM Set to the motor nameplate rated RPM. | Units: RPM Default: Calculated Min/Max: 1/30000 Scale: Par 4 [Motor NP RPM] = 1.0pu | | RW | 16-bit Integer | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

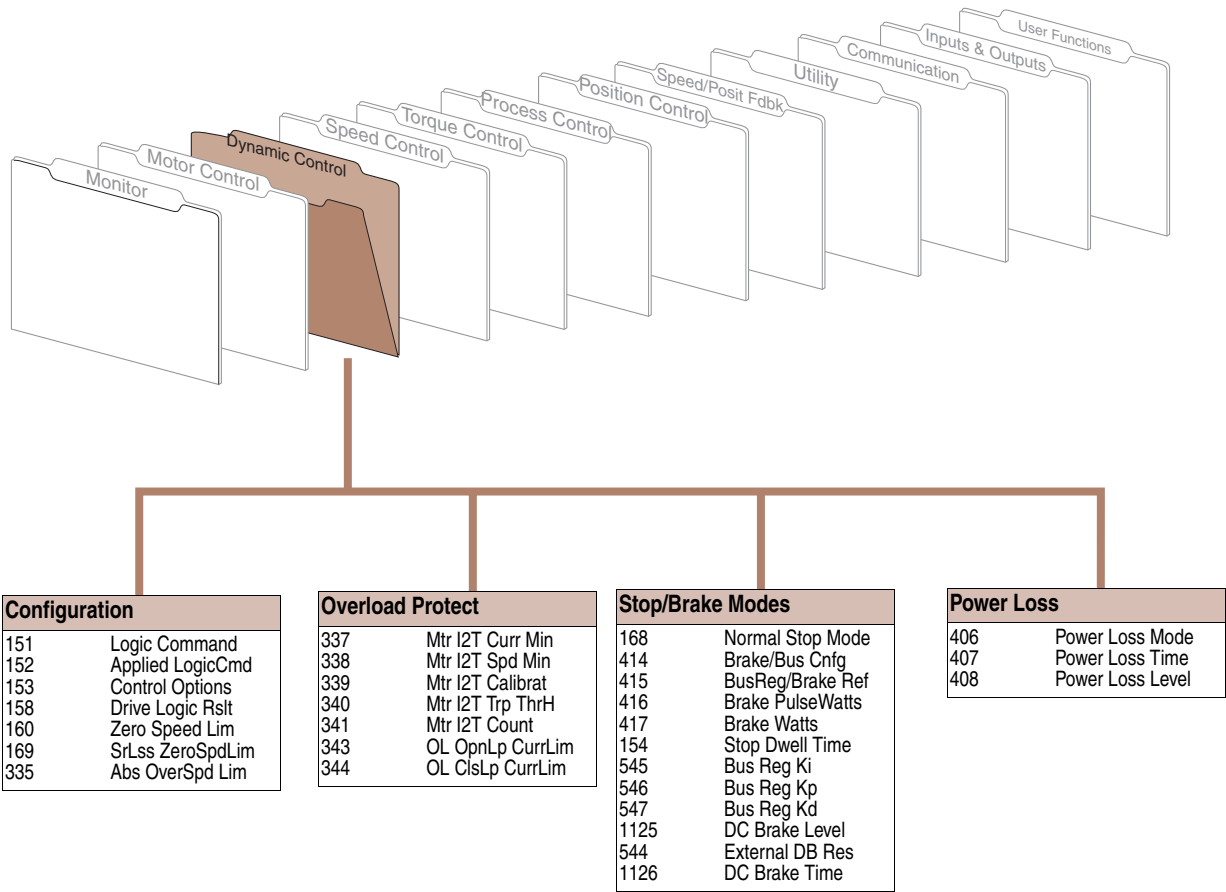
| No. | Name Description | Linkable | Read-Write | Data Type |
|-----|---------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------|------------------------------------------|-------------------|
| ① | No. - Parameter Number | ✓ | RW RO | 16-bit Integer |
| |  Parameter value cannot be changed until the drive is stopped. | | | |
| ② | Name - Parameter name as it appears in the DriveExecutive software. | | | |
| | Description - Brief description of parameter function. | | | |
| ③ | Values - Define the various operating characteristics of the parameter. <i>There are 3 types of Values.</i> | | | |
| | ENUM | | | |
| | | Options: | Displays the selections available. | |
| | Bit | Default: | Lists the value assigned at the factory. | |
| | | Options: | Displays the selections available. | |
| | Numeric | Default | Lists the value assigned at the factory. | |
| | Min/Max. | Displays lowest possible setting/Displays highest possible setting. | | |
| | Scale: | Value sent from Controller or Comm Device = Drive Parameter Value x Comm Scale | | |
| | A checkmark (✓) indicates that the parameter is linkable. | | | |
| | Indicates if parameter is read-write or read-only. RW=Read-Write RO=Read Only | | | |
| | Indicates parameter data type (i.e. integer, floating point, boolean). | | | |

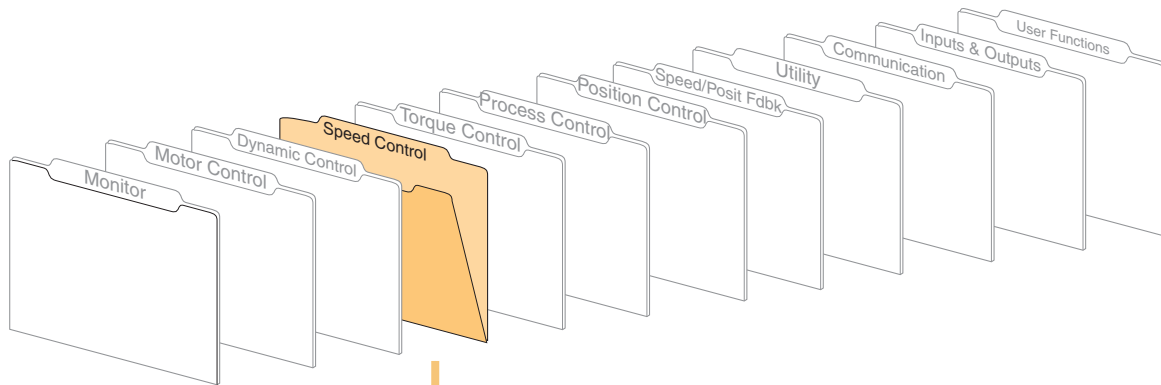
How Parameters are Organized

DriveExecutive programming software displays parameters in “Linear List” or “File Group Parameter” format. Viewing the parameters in “File Group Parameter” format simplifies programming by grouping parameters that are used for similar functions. There are twelve files. Each file is divided into multiple groups of parameters.





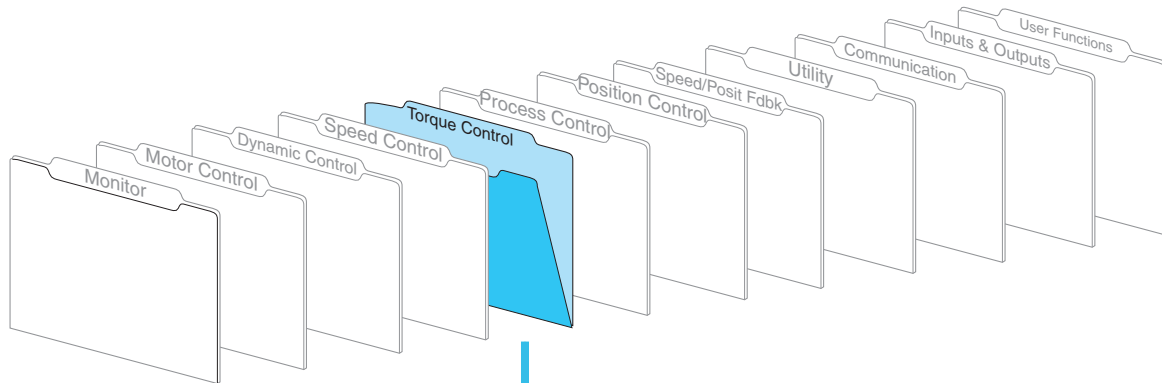




| Reference | |
|-----------|------------------|
| 27 | Speed Ref A Sel |
| 28 | Speed Ref B Sel |
| 10 | Speed Ref 1 |
| 11 | Spd Ref1 Divide |
| 12 | Speed Ref 2 |
| 13 | Spd Ref2 Multi |
| 14 | Preset Speed 1 |
| 15 | Preset Speed 2 |
| 16 | Preset Speed 3 |
| 17 | Preset Speed 4 |
| 18 | Preset Speed 5 |
| 19 | Preset Speed 6 |
| 20 | Preset Speed 7 |
| 29 | Jog Speed 1 |
| 39 | Jog Speed 2 |
| 40 | Selected Spd Ref |
| 30 | Min Spd Ref Lim |
| 31 | Max Spd Ref Lim |
| 41 | Limited Spd Ref |
| 32 | Accel Time 1 |
| 33 | Decel Time 1 |
| 34 | S Curve Time |
| 43 | Ramped Spd Ref |
| 53 | Drive Ramp Rslt |
| 45 | Delayed Spd Ref |
| 61 | Virt Encoder EPR |
| 62 | Virt Encdr Posit |
| 63 | Virt Encdr Dlyed |
| 37 | Spd Ref Bypass |
| 35 | SpdRef Filt Gain |
| 36 | SpdRef Filt BW |
| 38 | Speed Ref Scale |
| 46 | Scaled Spd Ref |
| 21 | Speed Trim 1 |
| 47 | SpdRef + SpdTrm1 |
| 56 | Inertia SpeedRef |
| 9 | Total Inertia |
| 57 | InertiaAccelGain |
| 58 | InertiaDecelGain |
| 60 | DeltaSpeedScale |
| 55 | Speed Comp |
| 59 | Inertia Trq Add |
| 64 | FricComp Spd Ref |
| 65 | FricComp Setup |
| 1160 | VirtEncPositFast |
| 66 | FricComp Stick |
| 67 | FricComp Slip |
| 68 | FricComp Rated |
| 69 | FricComp Trq Add |

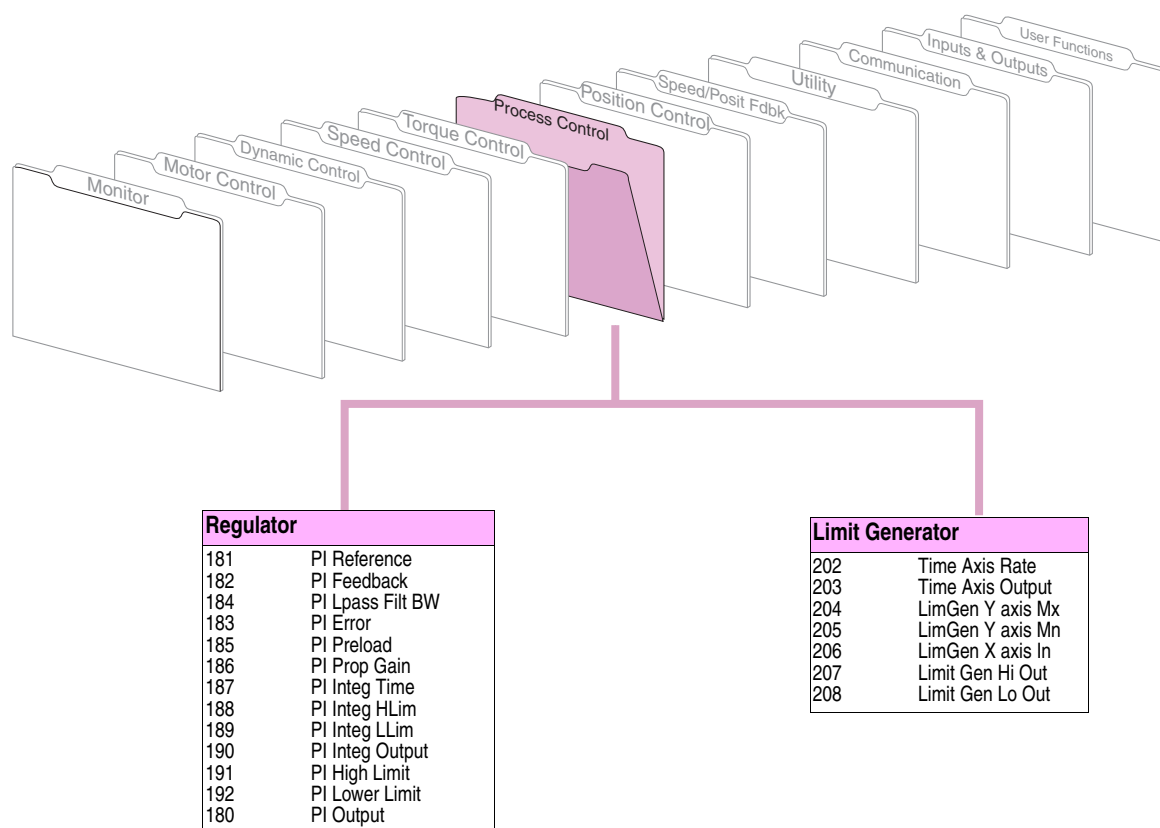
| Regulator | |
|-----------|------------------|
| 48 | Spd Ref Bypass2 |
| 23 | Speed Trim 3 |
| 24 | SpdTrim 3 Scale |
| 22 | Speed Trim 2 |
| 25 | STrim2 Filt Gain |
| 26 | SpdTrim2 Filt BW |
| 74 | Atune Spd Ref |
| 75 | Rev Speed Lim |
| 76 | Fwd Speed Lim |
| 301 | Motor Speed Ref |
| 300 | Motor Spd Fdbk |
| 93 | SRegFB Filt Gain |
| 94 | SReg FB Filt BW |
| 71 | Filtered SpdFdbk |
| 100 | Speed Error |
| 89 | Spd Err Filt BW |
| 84 | SpdReg AntiBckup |
| 85 | Servo Lock Gain |
| 87 | SReg Trq Preset |
| 9 | Total Inertia |
| 90 | Spd Reg BW |
| 97 | Act Spd Reg BW |
| 91 | Spd Reg Damping |
| 81 | Spd Reg P Gain |
| 82 | Spd Reg I Gain |
| 92 | SpdReg P Gain Mx |
| 86 | Spd Reg Droop |
| 101 | SpdReg Integ Out |
| 106 | SrLss Spd Reg BW |
| 104 | SrLss Spd Reg Kp |
| 105 | SrLss Spd Reg Ki |
| 102 | Spd Reg Pos Lim |
| 103 | Spd Reg Neg Lim |
| 95 | SRegOut FiltGain |
| 96 | SReg Out Filt BW |
| 302 | Spd Reg PI Out |

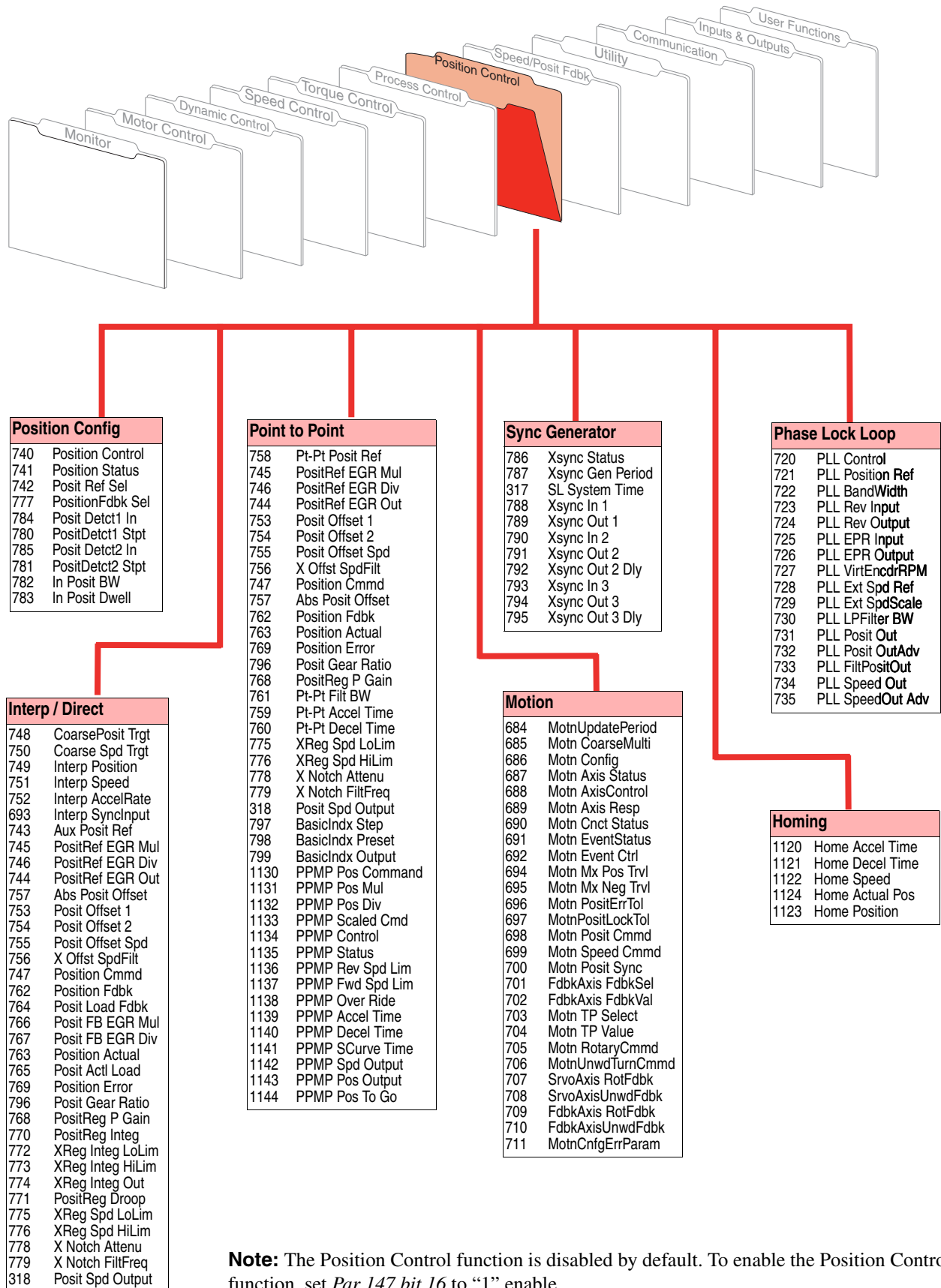
| Setpoint Monitor | |
|------------------|------------------|
| 171 | Set Speed Lim |
| 172 | Setpt 1 Data |
| 173 | Setpt1 TripPoint |
| 174 | Setpt 1 Limit |
| 175 | Setpt 2 Data |
| 176 | Setpt2 TripPoint |
| 177 | Setpt 2 Limit |



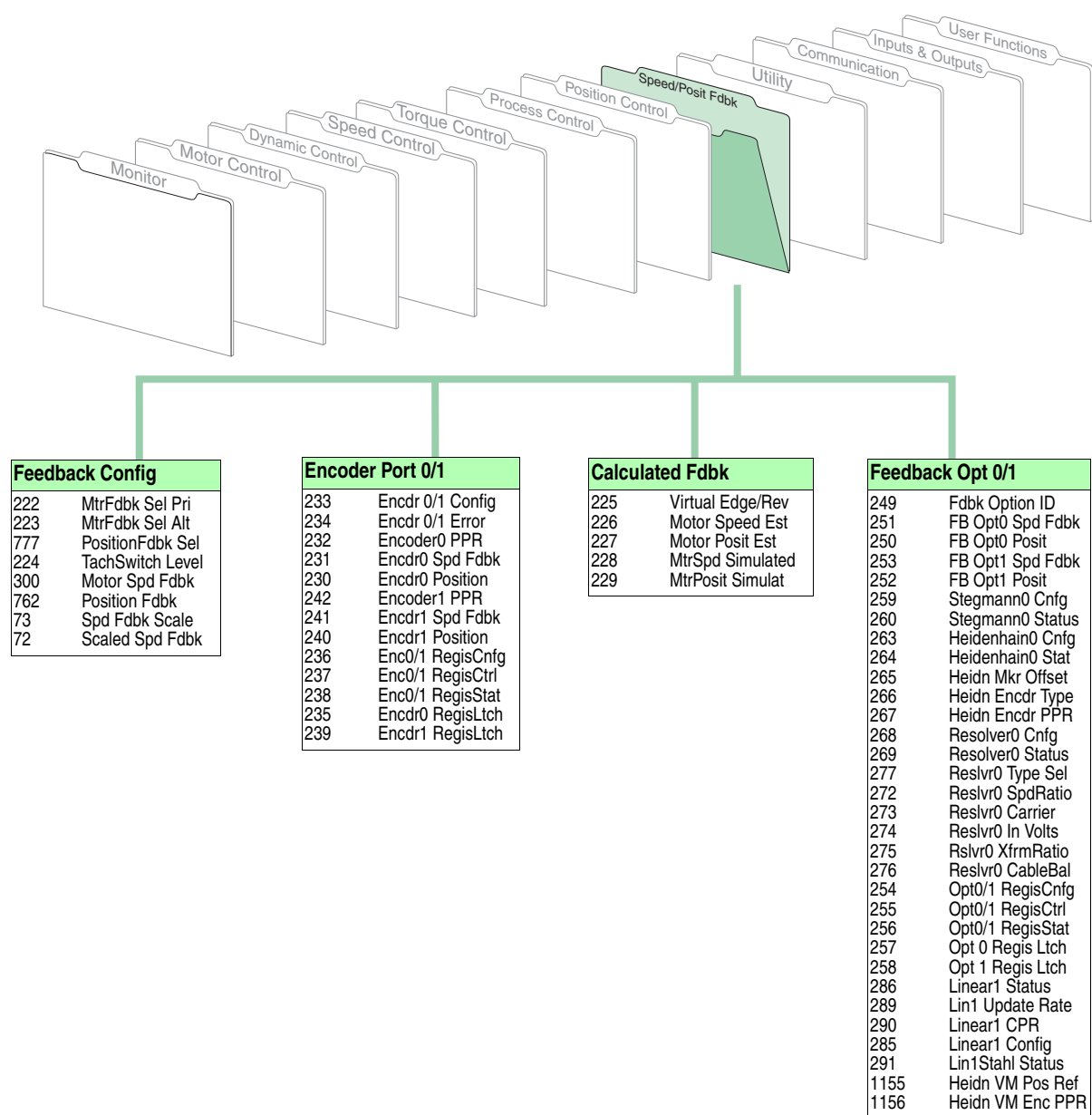
| Torque | |
|--------|------------------|
| 110 | Speed/TorqueMode |
| 302 | Spd Reg PI Out |
| 59 | Inertia Trq Add |
| 69 | FricComp Trq Add |
| 111 | Torque Ref 1 |
| 112 | Torque Ref1 Div |
| 113 | Torque Ref 2 |
| 114 | Torque Ref2 Mult |
| 115 | Torque Trim |
| 119 | SLAT ErrorSetpnt |
| 120 | SLAT Dwell Time |
| 319 | Selected Trq Ref |
| 116 | Torque Step |
| 129 | Atune Trq Ref |
| 117 | NotchAttenuation |
| 118 | Notch Filt Freq |
| 415 | BusReg/Brake Ref |
| 401 | Rated Volts |
| 306 | DC Bus Voltage |
| 300 | Motor Spd Fdbk |
| 127 | Mtring Power Lim |
| 128 | Regen Power Lim |
| 353 | Iq Actual Lim |
| 125 | Torque Pos Limit |
| 126 | Torque Neg Limit |
| 123 | Trq PosLim Actl |
| 124 | Trq NegLim Actl |
| 303 | Motor Torque Ref |
| 132 | Inert Adapt Sel |
| 133 | Inert Adapt BW |
| 134 | Inert Adapt Gain |
| 221 | Load Estimate |

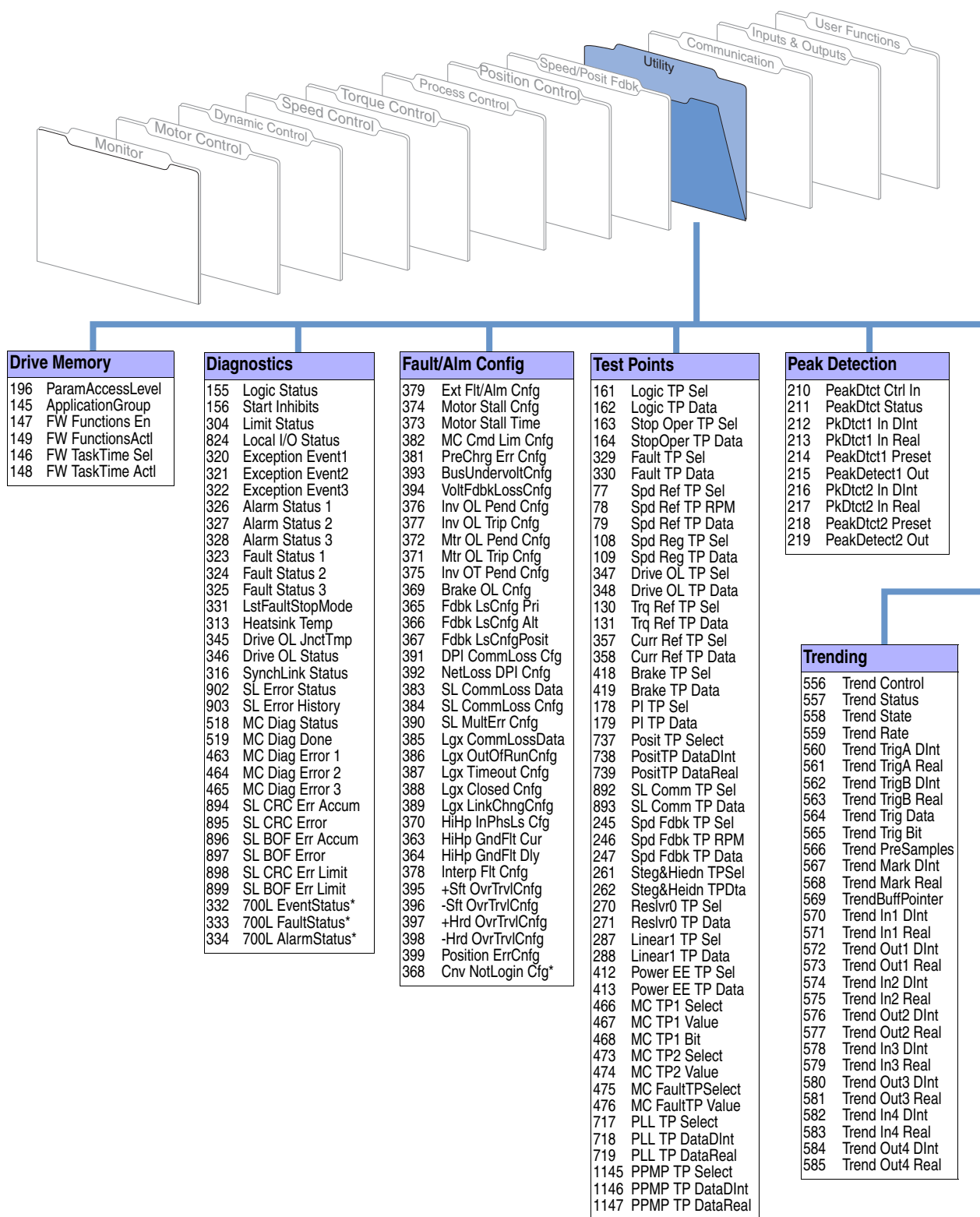
| Current | |
|---------|------------------|
| 303 | Motor Torque Ref |
| 309 | % Motor Flux |
| 359 | Motor Flux Est |
| 360 | Min Flux |
| 361 | Flx LpassFilt BW |
| 350 | Iq Actual Ref |
| 351 | Iq Ref Trim |
| 308 | Output Current |
| 343 | OL OpnLp CurrLim |
| 356 | Mtr Current Lim |
| 362 | Current Lmt Gain |
| 352 | Is Actual Lim |
| 488 | Flux Current |
| 312 | MotorFluxCurr FB |
| 345 | Drive OL JnctTmp |
| 313 | Heatsink Temp |
| 346 | Drive OL Status |
| 344 | OL ClsLp CurrLim |
| 353 | Iq Actual Lim |
| 354 | Iq Rate Limit |
| 355 | Iq Ref Limited |
| 305 | Mtr Trq Curr Ref |



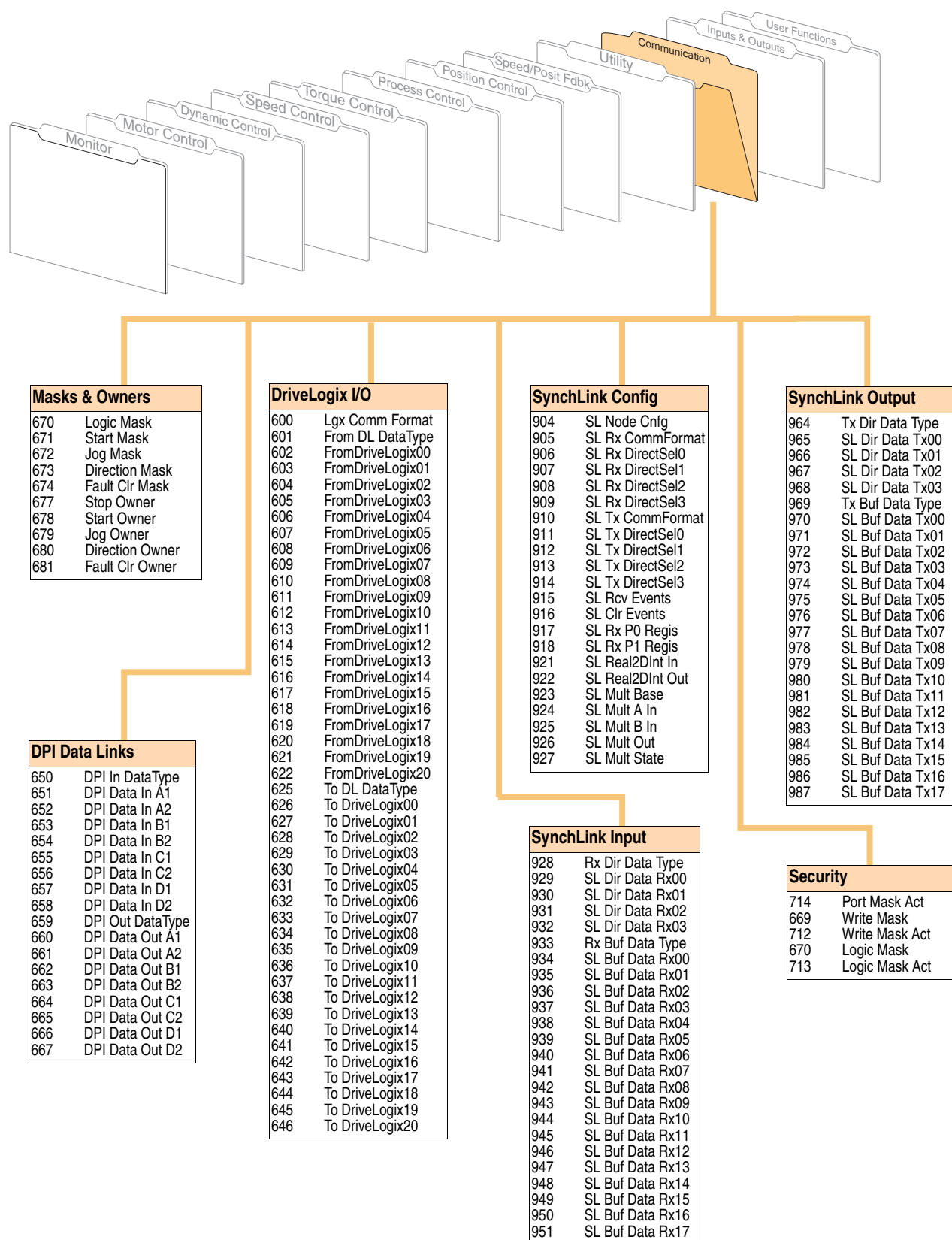


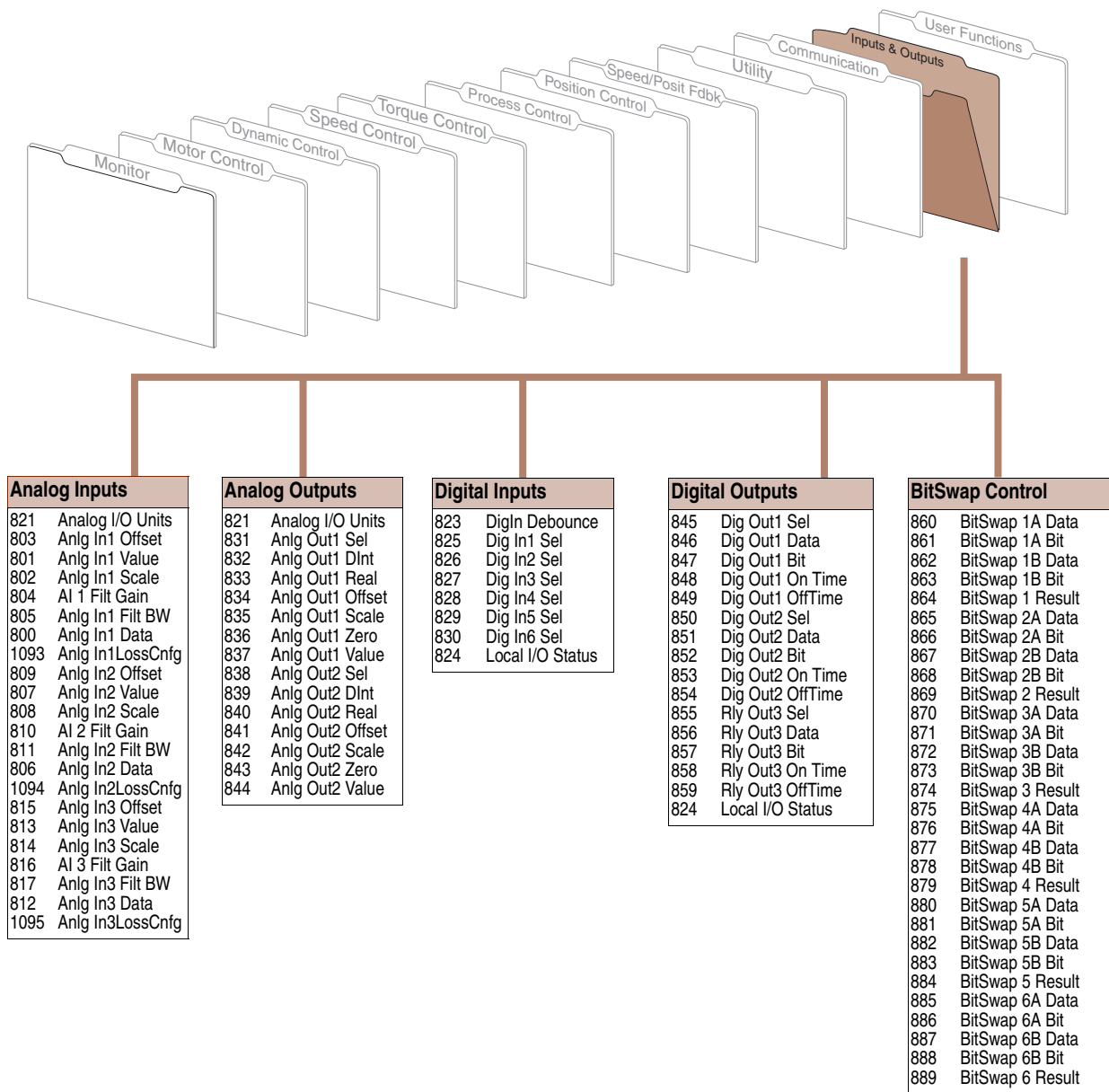
Note: The Position Control function is disabled by default. To enable the Position Control function, set *Par 147 bit 16* to “1” enable.

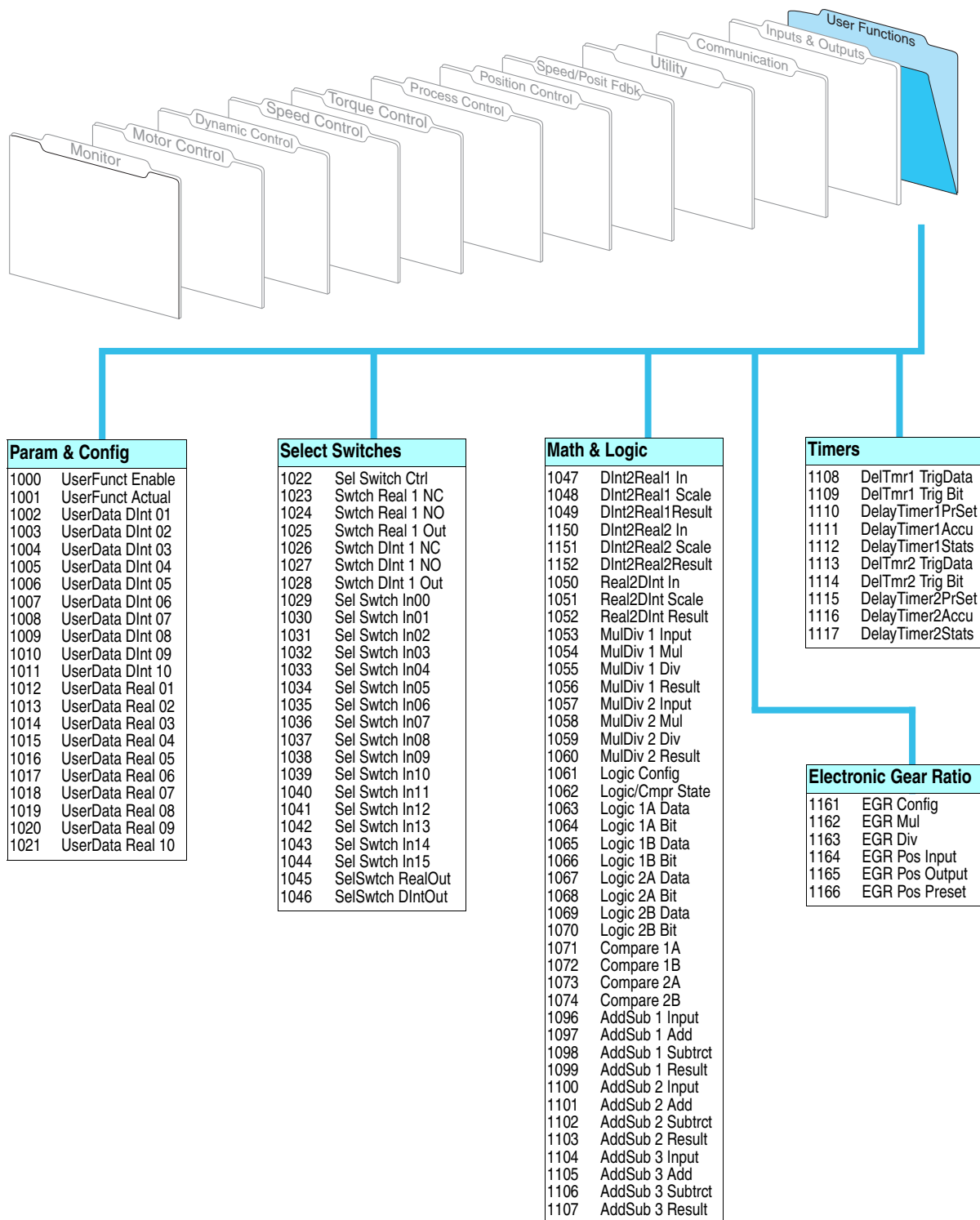




***Note:** This parameter is used by PowerFlex 700L drives only.



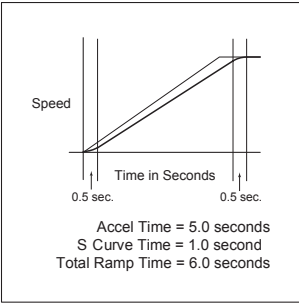








Parameter Data in Linear List Format

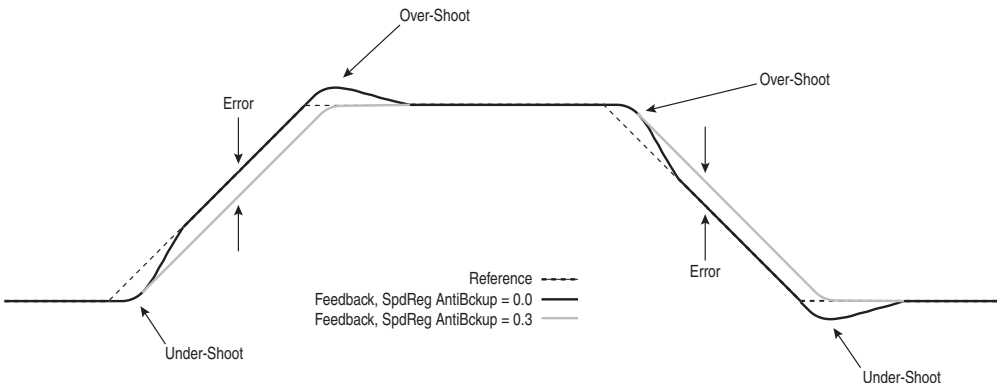
| No. | Name Description | Values | | Linkable | Read-Write | Data Type |
|---------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------|--|----------|------------|----------------|
| 1 | Motor NP Volts Set to the motor nameplate rated volts. | Units: Volt Default: Calculated ⁽¹⁾ Min/Max: 75/705 | | | RW | 16-bit Integer |
| 2 | Motor NP FLA Set to the motor nameplate rated full load amps. Range limited by three-second inverter rating. | Units: Amps Default: Calculated ⁽¹⁾ Min/Max: Calculated/Calculated | | | RW | Real |
| 3 | Motor NP Hertz Set to the motor nameplate rated frequency. | Units: Hz Default: Calculated ⁽¹⁾ Min/Max: 2.0000/500.0000 | | | RW | Real |
| 4 | Motor NP RPM Set to the motor nameplate rated RPM. | Units: RPM Default: Calculated ⁽¹⁾ Min/Max: 1/30000 | | | RW | 16-bit Integer |
| 5 | Motor NP Power Set to the motor nameplate rated power. Note: The unit of measure for this parameter was changed from kW to Hp for firmware version 2.03. | Units: Hp Default: Calculated ⁽¹⁾ Min/Max: 0.2500/3500.0000 | | | RW | 32-bit Integer |
| 6 | Mtr NP Pwr Units The power units shown on the motor nameplate. | Default: 0 = "Hp" Options: 0 = "Hp" 1 = "kW" | | | | |
| 7 | Motor Poles Set the number of motor poles indicated on the motor nameplate or manufacturer's motor data sheet. Only even numbers of poles are allowed. Calculation: (120 * NP Hz) / NP RPM = Poles {round down} | Units: Pole Default: 4 Min/Max: 2/40 | | | RW | 16-bit Integer |
| 9 | Total Inertia Time, in seconds, for a motor coupled to a load to accelerate from zero to base speed, at rated motor torque. Calculated during auto-tune. | Units: Sec Default: 2.0000 Min/Max: 0.0100/655.0000 | | ✓ | RW | Real |
| 10 | Speed Ref 1 Sets the speed reference that the drive should use when selected by Par 27 [Speed Ref A Sel] or Par 28 [Speed Ref B Sel]. A value of 1.0 represents base speed of the motor. | Default: 0.0000 Min/Max: -/+2200000000.0000 | | ✓ | RW | Real |
| 11 | Spd Ref1 Divide Par 10 [Speed Ref 1] is divided by this number. This number can be used to scale the value of Par 10 [Speed Ref 1]. | Default: 1.0000 Min/Max: -/+2200000000.0000 | | ✓ | RW | Real |
| 12 | Speed Ref 2 Sets the speed reference that the drive should use when selected by Par 27 [Speed Ref A Sel] or Par 28 [Speed Ref B Sel]. A value of 1.0 represents base speed of the motor. | Default: 0.0000 Min/Max: -/+2200000000.0000 | | ✓ | RW | Real |
| 13 | Spd Ref2 Multi Par 12 [Speed Ref 2] is multiplied by this number. This number can be used to scale the value of Par 12 [Speed Ref 2]. | Default: 1.0000 Min/Max: -/+2200000000.0000 | | ✓ | RW | Real |
| 14 through 20 | Preset Speed 1 Preset Speed 7 Provides an internal fixed speed command value. The preset speeds may be selected with Par 27 [Speed Ref A Sel] or Par 28 [Speed Ref B Sel]. | Units: RPM Default: 0.0000 Min/Max: -/+8.0000 pu Scale: Par 4 [Motor NP RPM] = 1.0 pu | | ✓ | RW | Real |
| 21 | Speed Trim 1 Provides an additive trim value to Par 38 [Speed Ref Scale]. | Units: RPM Default: 0.0000 Min/Max: -/+14112.0000 Scale: Par 4 [Motor NP RPM] = 1.0 pu | | ✓ | RW | Real |
| 22 | Speed Trim 2 Provides an additive speed trim value to Par 47 [SpdRef + SpdTrm1] with a Lead/Lag filter. The Position regulator output is linked to this parameter by default. This speed trim value affects the speed reference input to the speed regulator. | Units: RPM Default: 0.0000 Min/Max: -/+14112.0000 Scale: Par 4 [Motor NP RPM] = 1.0 pu | | ✓ | RW | Real |
| 23 | Speed Trim 3 Provides a scalable speed trim value that will be added to Par 47 [SpdRef + SpdTrm1]. Par 24 [SpdTrim 3 Scale] scales this value prior to the trim value affecting the speed reference. | Units: RPM Default: 0.0000 Min/Max: -/+14112.0000 Scale: Par 4 [Motor NP RPM] = 1.0 pu | | ✓ | RW | Real |
| 24 | SpdTrim 3 Scale Par 23 [Speed Trim 3] is multiplied by this number. This number can be used to scale the value of Par 23 [Speed Trim 3]. | Default: 1.0000 Min/Max: -/+1000.0000 | | ✓ | RW | Real |

¹ The calculation is based on the drive frame size and input voltage.

| No. | Name Description | Values | | | Linkable | Read-Write | Data Type |
|----------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|--|----------|------------|-----------|
| 25 | STrim2 Filt Gain Sets the lead term for the Par 22 [Speed Trim 2] filter. Values greater than 1 will result in a lead function and value less than 1 will result in a lag function. A value of 1 will disable the filter. | Default: 1.0000 Min/Max: +/-15.0000 | | | ✓ | RW | Real |
| 26 | SpdTrim2 Filt BW Sets the frequency for the Speed Trim 2 filter. | Units: R/S Default: 200.0000 Min/Max: 0.0000/1000.0000 | | | ✓ | RW | Real |
| 27 28 | Speed Ref A Sel Speed Ref B Sel Selects the speed reference source for the drive. The selected speed reference values converge in the final selection of the drives speed reference with Par 152 [Applied LogicCmd] and are selected with bits 28, 29, 30. See the Block Diagrams in Appendix B for a description. | Default A: 1 = "Spd Ref 1" Default B: 5 = "Preset Spd 1" Options: 0 = "Zero Speed" 9 = "Preset Spd 5" 1 = "Speed Ref 1" 10 = "Preset Spd 6" 2 = "Speed Ref 2" 11 = "Preset Spd 7" 3 = "Sum Sref 1+2" 12 = "DPI Port 1" 4 = "MOP Level" 13 = "DPI Port 2" 5 = "Preset Spd 1" 14 = "DPI Port 3" 6 = "Preset Spd 2" 15 = "Reserved" 7 = "Preset Spd 3" 16 = "DPI Port 5" 8 = "Preset Spd 4" | | | | | |
| 29 | Jog Speed 1 Sets the speed reference that the drive should use when responding to bit 18 [Jog 1] of Par 152 [Applied LogicCmd]. | Units: RPM Default: 0.0000 Min/Max: +/-8.0000 pu Scale: Par 4 [Motor NP RPM] = 1.0 pu | | | ✓ | RW | Real |
| 30 | Min Spd Ref Lim Sets the minimum speed reference limit. This value may be negative or positive but not greater than Par 31 [Max Spd Ref Lim]. | Units: RPM Default: 0.0000 Min/Max: -8.0000/Par 31 [Max Spd Ref Lim] Scale: Par 4 [Motor NP RPM] = 1.0 pu | | | | RW | Real |
| 31 | Max Spd Ref Lim Sets the maximum speed reference limit. This value may be negative or positive but not less than Par 30 [Min Spd Ref Lim]. | Units: RPM Default: 0.0000 Min/Max: Par 30 [Min Spd Ref Lim]/8.0000 Scale: Par 4 [Motor NP RPM] = 1.0 pu | | | | RW | Real |
| 32 | Accel Time 1 Sets the rate of acceleration for all speed increases, with time in seconds to base speed. Accel Rate = Par 4 [Motor NP RPM] / Par 32 [Accel Time] | Units: Sec Default: 10.0000 Min/Max: 0.0100/6553.5000 | | | ✓ | RW | Real |
| 33 | Decel Time 1 Sets the rate of deceleration for all speed decreases, with time in seconds to base speed. Decel Rate = Par 4 [Motor NP RPM] / Par 33 [Decel Time] | Units: Sec Default: 10.0000 Min/Max: 0.0100/6553.5000 | | | ✓ | RW | Real |
| 34 | S Curve Time Sets the S time (Round In and Round Out) in seconds. Half of the time specified is added to the beginning and half to the end of the applied ramp. The S time is independent of speed and results in a trapezoidal torque profile. For example:  Accel Time = 5.0 seconds S Curve Time = 1.0 second Total Ramp Time = 6.0 seconds | Units: Sec Default: 0.5000 Min/Max: 0.0000/4.0000 | | | ✓ | RW | Real |
| 35 | SpdRef Filt Gain Sets the lead term for the Speed Reference filter. Values greater than 1 will result in a lead function and values less than 1 will result in a lag function. A value of 1 will disable the filter. | Default: 1.0000 Min/Max: +/-5.0000 | | | ✓ | RW | Real |
| 36 | SpdRef Filt BW Sets the frequency for the Speed Reference filter. | Units: R/S Default: 0.0000 Min/Max: 0.0000/500.0000 | | | ✓ | RW | Real |
| 37 | Spd Ref Bypass The speed command after the limit, ramp and s-curve blocks. Link a source directly to this parameter to bypass these blocks. | Units: RPM Default: 0.0000 Min/Max: +/-14112.0000 Scale: Par 4 [Motor NP RPM] = 1.0 pu | | | ✓ | RW | Real |
| 38 | Speed Ref Scale This parameter is multiplied with the value in Par 37 [Spd Ref Bypass]. | Default: 1.0000 Min/Max: +/-1000.0000 | | | ✓ | RW | Real |

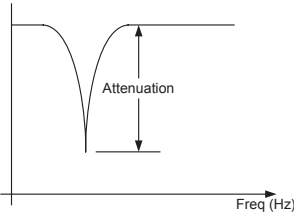

| No. | Name Description | Values | | Linkable | Read-Write | Data Type |
|-----|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------|--|----------|------------|----------------|
| 39 | Jog Speed 2 Sets the speed reference that the drive should use when responding to bit 23 [Jog 2] of Par 152 [Applied LogicCmd]. | Units: RPM Default: 0.0000 Min/Max: +/-8.0000 pu Scale: Par 4 [Motor NP RPM] = 1.0 pu | | ✓ | RW | Real |
| 40 | Selected Spd Ref Displays the speed command before the speed reference limit block. | Units: RPM Default: 0.0000 Min/Max: +/-8.0000 pu Scale: Par 4 [Motor NP RPM] = 1.0 pu | | | RO | Real |
| 41 | Limited Spd Ref Displays the speed command after the limit block, limited by Par 30 [Min Spd Ref Lim] and Par 31 [Max Spd Ref Lim]. | Units: RPM Default: 0.0000 Min/Max: +/-8.0000 pu Scale: Par 4 [Motor NP RPM] = 1.0 pu | | | RO | Real |
| 42 | Jerk Allows you to adjust the amount of S-Curve or "Jerk" applied to the Accel/Decel rate. Note: This parameter was added for firmware version 2.03. | Default: 900 Min/Max: 2/30000 | | | RW | 16-bit Integer |
| 43 | Ramped Spd Ref Displays the speed command after the ramp block, modified by Par 32 [Accel Time 1], Par 33 [Decel Time 1] and Par 34 [S Curve Time]. | Units: RPM Default: 0.0000 Min/Max: +/-8.0000 pu Scale: Par 4 [Motor NP RPM] = 1.0 pu | | | RO | Real |
| 45 | Delayed Spd Ref One sample period delayed output of Par 43 [Ramped Spd Ref]. Used in some applications to synchronize the speed reference value through SynchLink. This master drive Par 43 [Ramped Spd Ref] would then be transmitted to the slave drives over SynchLink. | Units: RPM Default: 0.0000 Min/Max: +/-14112.0000 Scale: Par 4 [Motor NP RPM] = 1.0 pu | | | RO | Real |
| 46 | Scaled Spd Ref Displays the speed command after scaling. | Units: RPM Default: 0.0000 Min/Max: +/-14112.0000 Scale: Par 4 [Motor NP RPM] = 1.0 pu | | | RO | Real |
| 47 | SpdRef + Spd Trm1 Displays the final speed command used by the Speed Regulator. It is the sum of Par 46 [Scaled Spd Ref] and Par 21 [Speed Trim 1]. | Units: RPM Default: 0.0000 Min/Max: +/-8.0000 pu Scale: Par 4 [Motor NP RPM] = 1.0 pu | | | RO | Real |
| 48 |  Spd Ref Bypass2 The speed command after the limit, ramp and s-curve blocks. Link a source directly to this parameter to bypass these blocks. | Units: RPM Default: 0.0000 Min/Max: +/-8.0000 pu Scale: Par 4 [Motor NP RPM] = 1.0 pu | | ✓ | RW | Real |
| 49 | Selected SpdRefA Used to view the value of Speed Reference A, Par 27 [Speed Ref A Sel] from a Human Interface Module (HIM). Note: This parameter is new for firmware version 3.01. | Units: RPM Default: 0.0000 Min/Max: +/-8.0000 | | | RO | Real |
| 50 | Selected SpdRefB Used to view the value of Speed Reference B, Par 28 [Speed Ref B Sel] from a HIM. Note: This parameter is new for firmware version 3.01. | Units: RPM Default: 0.0000 Min/Max: +/-8.0000 | | | RO | Real |
| 53 | Drive Ramp Rslt Displays the speed reference value, after the limit function. This is the input to the error calculator and speed regulator. Available for use in peer-to-peer data links (DPI interface). This number is scaled so that rated motor speed will read 32768. | Default: 0 Min/Max: +/-262144 | | | RO | 32-bit Integer |
| 54 | Inertia TrqLpfBW Sets the bandwidth of the inertia compensation torque output low pass filter. A value of 0.0 will disable the filter. Note: This parameter is new for firmware version 3.01. | Units: R/S Default: 35.0000 Min/Max: 0.0000 /2000.0000 | | ✓ | RW | Real |
| 55 | Speed Comp Displays the derivative or change in Par 56 [Inertia SpeedRef] on a per second basis. Link this parameter to Par 23 [Speed Trim 3] and set Par 24 [SpdTrim 3 Scale] to 0.002 to reduce position error in following applications. | Units: /Sec Default: 0.0000 Min/Max: +/-2200000000.0000 | | | RO | Real |
| 56 | Inertia SpeedRef The speed input of the inertia compensator. Link this parameter to the output of an internal ramp or s-curve block. The inertia compensator generates a torque reference that is proportional to the rate of change of speed input and total inertia. | Units: RPM Default: 0.0000 Min/Max: +/-14112.0000 Scale: Par 4 [Motor NP RPM] = 1.0 pu | | ✓ | RW | Real |
| 57 | InertiaAccelGain Sets the acceleration gain for the Inertia Compensation function. A value of 1 produces 100% compensation. | Default: 1.0000 Min/Max: 1.0000/2.0000 | | ✓ | RW | Real |
| 58 | InertiaDecelGain Sets the deceleration gain for the Inertia Compensation function. A value of 1 produces 100% compensation. | Default: 1.0000 Min/Max: 1.0000/2.0000 | | ✓ | RW | Real |
| 59 | Inertia Trq Add The torque reference output generated by the inertia compensator. This torque level is modified by Par 57 [InertiaAccelGain] and Par 58 [InertiaDecelGain]. A value of 1.0 represents rated torque of the motor. | Units: P.U. Default: 1.0000 Min/Max: +/-8.0000 pu | | | RO | Real |

| No. | Name Description | Values | | Linkable | Read-Write | Data Type |
|-----|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------|--|----------|------------|----------------|
| 60 | DeltaSpeedScale Multiplier in the Inertia Compensation function - affects the value of Par 59 [Inertia Trq Add]. Use in center winder and unwind applications to compensate for roll diameter build-up. | Default: 1.0000 Min/Max: -/+1000.0000 | | ✓ | RW | Real |
| 61 |  Virt Encoder EPR Equivalent Edges Per Revolution (EPR) or line count of a virtual encoder. A virtual encoder is a position reference whose input comes from speed reference. It accumulates pulses at the same rate as a real encoder of identical Pulses Per Revolution (PPR). Enter the equivalent PPR. For example, enter 1024 PPR to match an encoder with 1024 EPR. | Units: EPR Default: 4096 Min/Max: 10/67108864 | | | RW | 32-bit Integer |
| 62 | Virt Encdr Posit A 32 bit pulse accumulator of the virtual encoder. The accumulated pulse count is equivalent to the hardware accumulator of a real encoder. It accumulates at a rate of 4x the value placed in Par 61 [Virt Encoder EPR]. The accumulator starts at zero upon position enable. | Default: 0 Min/Max: -/+2147483648 | | | RO | 32-bit Integer |
| 63 | Virt Encdr Dlyed One sample period delayed output of Par 62 [Virt Encdr Posit]. Used in some applications to phase synchronize position reference through SynchLink. The master is delayed one sample while the downstream drives update their position references – then all drives sample position simultaneously. The downstream drives do not select a delay. | Default: 0 Min/Max: -/+2147483648 | | | RO | 32-bit Integer |
| 64 | FricComp Spd Ref Supplies a speed input to the Friction Compensation algorithm. This input is normally a speed reference from a motion planner or ramped speed reference. It will trigger a torque feed forward response depending on its value. | Units: RPM Default: 0.0000 Min/Max: -/+8.0000 pu | | ✓ | RW | Real |
| 65 | FricComp Setup Enter or write a value to configure the friction compensation algorithm. This is a packed word of 3 digits. Each digit has a possible selection of 10 levels. <ul style="list-style-type: none"> The least significant digit sets the speed threshold in intervals of 0.0005 pu speed. The next (middle) digit sets the hysteresis band for the “units” digit in intervals of 0.0005 pu velocity. The most significant digit sets the number of time steps from stick to slip, each step is 0.002 sec. <p>Example: Value = 524 means: 5 time steps between stick and slip, each of 0.002 sec. duration, 2 counts of hysteresis or 0.001 pu_speed (each count is 0.0005 pu_speed), and 4 counts or 0.002 pu_speed is the trigger threshold (each count is 0.0005 pu_speed).</p> | Default: 325 Min/Max: 0/999 | | ✓ | RW | 16-bit Integer |
| 66 | FricComp Stick The torque needed to break away from zero speed. By nature of friction, the break away sticktion will always be greater than the running friction. | Units: P.U. Default: 0.1500 Min/Max: 0.0000/8.0000 | | ✓ | RW | Real |
| 67 | FricComp Slip The torque level to sustain very low speed – once “break away” has been achieved. By nature of friction, viscous friction will always be less than sticktion. | Units: P.U. Default: 0.1000 Min/Max: 0.0000/8.0000 | | ✓ | RW | Real |
| 68 | FricComp Rated The torque needed to keep the motor running at base speed and with no process loading. The friction compensation algorithm assumes a linear or viscous component of friction between Par 67 [FricComp Slip] and Par 68 [FricComp Rated]. | Units: P.U. Default: 0.2000 Min/Max: 0.0000/8.0000 | | ✓ | RW | Real |
| 69 | FricComp Trq Add The torque reference output of the Friction Compensation function. A value of 1.0 represents rated torque of the motor. | Units: P.U. Default: 0.0000 Min/Max: -/+8.0000 pu Scale: Motor P.U. Torque | | | RO | Real |
| 71 | Filtered SpdFdbk Displays the motor speed feedback value output from the feedback Lead/Lag filter. | Units: RPM Default: 0.0000 Min/Max: -/+14112.0000 Scale: Par 4 [Motor NP RPM] = 1.0 pu | | | RO | Real |
| 72 | Scaled Spd Fdbk Displays the product of the speed feedback and Par 73 [Spd Fdbk Scale]. This parameter is for display only. | Default: 0.0000 Min/Max: -/+2200000000.0000 Scale: Par 4 [Motor NP RPM] = 1.0 pu | | | RO | Real |
| 73 | Spd Fdbk Scale A user-adjustable scale factor (multiplier) for speed feedback. It is multiplied with speed feedback to produce Par 72 [Scaled Spd Fdbk]. | Default: 1.0000 Min/Max: -/+2200000000.0000 | | ✓ | RW | Real |
| 74 |  Atune Spd Ref Sets the maximum speed of the motor during the Flux current and inertia tests. | Units: RPM Default: Par 4 * 0.8500 Min/Max: Par 4 * 0.1000/Par 4 * 1.0000 Scale: Par 4 [Motor NP RPM] = 1.0 pu | | | RW | Real |
| 75 |  Rev Speed Limit Sets a limit on the speed reference in the negative direction. This value can be entered as a negative value or zero. The maximum value equals Par 532 [Maximum Freq] * 0.95. | Units: RPM Default: Par 4 * -1.2500 Min/Max: -8.0000/0.0000 Scale: Par 4 [Motor NP RPM] = 1.0 pu | | | RW | Real |
| 76 |  Fwd Speed Limit Sets a limit on the speed reference in the positive direction. This value can be entered as a positive value or zero. The maximum value equals Par 532 [Maximum Freq] * 0.95. | Units: RPM Default: Par 4 * 1.2500 Min/Max: 0.0000/8.0000 Scale: Par 4 [Motor NP RPM] = 1.0 pu | | | RW | Real |

| No. | Name Description | Values | | | Linkable | Read-Write | Data Type | | | | | | | | | | | | | | | | | | | | | |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------|----------------------------------------------------|----------|----------------|----------------|------|-----------------|------|------|----------------------|------|-----|----------------|-----|-----|-----------------|------|-----|----------------------|----|--|--|--|--|--|--|
| 77 | Spd Ref TP Sel Enter or write a value to select speed reference data displayed in Par 79 [Spd Ref TP Data] and Par 78 [Spd Ref TP RPM]. Note: The values for options 7, 8, & 9 were changed to "Reserved" for firmware version 2.04. | Default: 0 = "Zero" Options: 0 = "Zero" 12 = "S Crv Match" 1 = "User Ref" 13 = "S Array size" 2 = "Logic Select" 14 = "S Array Indx" 3 = "Lgc Sel Ref" 15 = "Reserved" 4 = "Ramp Spd Ref" 16 = "Scl Ext Trim" 5 = "Ramp In" 17 = "Trim FiltOut" 6 = "Filt Spd Ref" 18 = "Ref w/Trim" 7 = "Reserved" 19 = "Amp Lim2 In" 8 = "Reserved" 20 = "Amp LimStat2" 9 = "Reserved" 21 = "Amp Lim2 Out" 10 = "Amp Lim Stat" 22 = "FTD Ramp Out" 11 = "Ramp Match" 23 = "Reserved" | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 78 | Spd Ref TP RPM Displays the value selected in Par 77 [Spd Ref TP Sel] in RPM. This display should only be used if the selected value is floating point data. | Units: RPM Default: 0.0000 Min/Max: +/-8.0000 Scale: Par 4 [Motor NP RPM] = 1.0 pu | | | | RO | Real | | | | | | | | | | | | | | | | | | | | | |
| 79 | Spd Ref TP Data Displays the value selected in Par 77 [Spd Ref TP Sel]. This display should only be used if the selected value is integer data. | Default: 0 Min/Max: +/-32768 | | | | RO | 16-bit Integer | | | | | | | | | | | | | | | | | | | | | |
| 81 | Spd Reg P Gain Sets the proportional gain of the speed regulator. This value is automatically calculated based on the bandwidth setting in Par 90 [Spd Reg BW]. Proportional gain may be manually adjusted by setting Par 90 [Spd Reg BW] to a value of zero. Units are (per unit torque) / (per unit speed). The maximum value for Par 81 [Spd Reg P Gain] = Par 90 [Spd Reg BW] * Par 9 [Total Inertia] | Default: 20.0000 Min/Max: 0.0000/3000.0000 | | | ✓ | RW | Real | | | | | | | | | | | | | | | | | | | | | |
| <table><tr><th>Total Inertia (Par 9)</th><th>Maximum Speed Regulator Bandwidth (Par 90)</th><th>Maximum Speed Regulator Proportional Gain (Par 81)</th></tr><tr><td>0.01</td><td>475 (0.5 mSec)</td><td>4.75</td></tr><tr><td>0.01</td><td>650 (0.25 mSec)</td><td>6.50</td></tr><tr><td>0.01</td><td>30 (sensorless mode)</td><td>0.03</td></tr><tr><td>2.0</td><td>475 (0.5 mSec)</td><td>950</td></tr><tr><td>2.0</td><td>650 (0.25 mSec)</td><td>1300</td></tr><tr><td>2.0</td><td>30 (sensorless mode)</td><td>60</td></tr></table> | | Total Inertia (Par 9) | Maximum Speed Regulator Bandwidth (Par 90) | Maximum Speed Regulator Proportional Gain (Par 81) | 0.01 | 475 (0.5 mSec) | 4.75 | 0.01 | 650 (0.25 mSec) | 6.50 | 0.01 | 30 (sensorless mode) | 0.03 | 2.0 | 475 (0.5 mSec) | 950 | 2.0 | 650 (0.25 mSec) | 1300 | 2.0 | 30 (sensorless mode) | 60 | | | | | | |
| Total Inertia (Par 9) | Maximum Speed Regulator Bandwidth (Par 90) | Maximum Speed Regulator Proportional Gain (Par 81) | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 0.01 | 475 (0.5 mSec) | 4.75 | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 0.01 | 650 (0.25 mSec) | 6.50 | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 0.01 | 30 (sensorless mode) | 0.03 | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 2.0 | 475 (0.5 mSec) | 950 | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 2.0 | 650 (0.25 mSec) | 1300 | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 2.0 | 30 (sensorless mode) | 60 | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Note: The Max. value was increased from 600.0000 for firmware version 3.01. | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 82 | Spd Reg I Gain Sets the integral gain of the speed regulator. This value is automatically calculated based on the bandwidth setting in Par 90 [Spd Reg BW]. Integral gain may be manually adjusted by setting Par 90 [Spd Reg BW] to a value of zero. Units are (per unit torque/sec) / (per unit speed). | Units: /Sec Default: 50.0000 Min/Max: 0.0000/100000.0000 | | | ✓ | RW | Real | | | | | | | | | | | | | | | | | | | | | |
| 84 | SpdReg AntiBckup By setting this parameter to 0.3, the drive will not over shoot to a step response. This parameter has no affect on the drive's response to load changes. The recommended setting is 0.1000 to 0.5000. Note: This parameter was changed to non-linkable for firmware version 3.01. | Default: 0.0000 Min/Max: 0.0000/0.5000 | | | | RW | Real | | | | | | | | | | | | | | | | | | | | | |
|  | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

| No. | Name Description | Values | | Linkable | Read-Write | Data Type |
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| 85 | Servo Lock Gain Sets the gain of an additional integrator in the speed regulator. The effect of Servo Lock is to increase stiffness of the speed response to a load disturbance. It behaves like a position regulator with velocity feed forward, but without the pulse accuracy of a true position regulator. The units of Servo Lock are rad/sec. Gain should normally be set to less than 1/3 speed regulator bandwidth, or for the desired response. Set to zero to disable Servo Lock. | Units: /Sec Default: 0.0000 Min/Max: 0.0000/300.0000 | | ✓ | RW | Real |
| 86 | Spd Reg Droop Specifies the amount of base speed that the speed reference is reduced when at full load torque. Use the droop function to cause the motor speed to decrease with an increase in load. The units are per unit speed / per unit torque. | Units: P.U. Default: 0.0000 Min/Max: 0.0000/0.2500 | | ✓ | RW | Real |
| 87 | SReg Trq Preset When the drive is not enabled, this parameter presets integrator output Par 101 [SpdReg Integ Out] to a specified torque level. This ensures that the torque command will be at the preset value when the drive is enabled and run. Par 153 [Control Options], bit 18 [SpdRegPreset] = 0, enables this preset. | Units: P.U. Default: 0.0000 Min/Max: +/-8.0000 pu | | ✓ | RW | 16-bit Integer |
| 89 | Spd Err Filt BW Sets the bandwidth of a 2nd order Butterworth low pass filter, which reduces quantization noise. The units are rad/sec. A value of 0 will disable the filter. The value should be greater than 5 times the value of Par 90 [Spd Reg BW]. Note: The default value for this parameter was changed from 200.0000 to 700.0000 for firmware version 2.03. | Units: R/S Default: 700.0000 Min/Max: 0.0000/2000.0000 | | ✓ | RW | Real |
| 90 | Spd Reg BW Sets the bandwidth of the speed regulator in rad/sec. Bandwidth is also referred to as the crossover frequency. Small signal time response is approximately 1/BW and is the time to reach 63% of set point. A change to this parameter will cause an automatic update of Par 81 [Spd Reg P Gain] and Par 82 [Spd Reg I Gain]. To disable the automatic gain calculation, set this parameter to a value of zero. | Units: R/S Default: 10.0000 Min/Max: 0.0000/500.0000 | | ✓ | RW | Real |
| 91 | Spd Reg Damping Sets the damping factor of the drive's characteristic equation and factors in the calculation of the integral gain. A damping factor of 1.0 is considered critical damp. Lowering the damping will produce faster load disturbance rejection, but may cause a more oscillatory response. When Par 90 [Spd Reg BW] is set to zero, damping factor has no effect. | Default: 1.0000 Min/Max: 0.5000/3.0000 | | ✓ | RW | Real |
| 92 | SpdReg P Gain Mx Places a limit on the maximum value of proportional gain in Par 81 [Spd Reg P Gain] and Par 104 [Slriss Spd Reg Kp]. When gains are automatically calculated, this parameter is necessary to limit the amplification of noise with increased inertia. Note: The Max. value was increased from 600.0000 for firmware version 3.01. | Default: 100.0000 Min/Max: 0.0000/3000.0000 | | ✓ | RW | Real |
| 93 | SRegFB Filt Gain Sets the lead term for the speed feedback filter. Values greater than 1 will result in a lead function and values less than 1 will result in a lag function. A value of 1 will disable the filter. | Default: 1.0000 Min/Max: -5.0000/20.0000 | | ✓ | RW | Real |
| 94 | SReg FB Filt BW Sets the frequency for the Speed Feedback filter. | Units: R/S Default: 35.0000 Min/Max: 0.0000/3760.0000 | | ✓ | RW | Real |
| 95 | SRegOut FiltGain Sets the lead term for the Speed Regulator output filter. Values greater than 1 will result in a lead function and values less than 1 will result in a lag function. A value of 1 will disable the filter. Note: The default value for this parameter was changed from 0.7000 to 1.0000 for firmware version 2.03. | Default: 1.0000 Min/Max: +/-5.0000 | | ✓ | RW | Real |
| 96 | SReg Out Filt BW Sets the frequency for the Speed Regulator output filter. | Units: R/S Default: 30.0000 Min/Max: 0.0000/3760.0000 | | ✓ | RW | Real |
| 97 | Act Spd Reg BW Displays the actual speed regulator bandwidth or crossover frequency. The value represents the bandwidth in Par 90 [Spd Reg BW] after the maximum bandwidth limits have been applied. | Units: R/S Default: 10.0000 Min/Max: 0.0000/500.0000 | | | RO | Real |
| 98 | Slip RPM @ FLA Sets the amount of compensation to drive output at motor full load current (FLA). Note: This parameter was added for firmware version 2.03. | Units: RPM Default: Based on [Motor NP RPM] Min/Max: 0.0/1200.0 RPM | | ✓ | RW | 16-bit Integer |
| 99 | Slip Comp Gain Sets the response time of slip compensation. Note: This parameter was added for firmware version 2.03. | Units: R/S Default: 40.0 Min/Max: 1.0/100.0 | | ✓ | RW | 16-bit Integer |
| 100 | Speed Error The error (difference) between the motor speed reference (+) and the filtered motor speed feedback (-). | Units: RPM Default: 0.0000 Min/Max: +/-14112.0000 Scale: Par 4 [Motor NP RPM] = 1.0 pu | | | RO | Real |
| 101 | SpdReg Integ Out The output value of the Speed Regulator Integral channel. | Units: P.U. Default: 0.0000 Min/Max: +/-8.0000 pu Scale: 1.0 PU Torque | | | RO | Real |

| No. | Name Description | Values | | | Linkable | Read-Write | Data Type |
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| 102 | Spd Reg Pos Lim Sets the positive limit of the Speed Regulator output value. The output of the Speed Regulator is limited by adjustable high and low limits. | Units: P.U. Default: 3.0000 Min/Max: 0.0000/6.0000 Scale: \ Par 4 [Motor NP RPM] = 1.0 pu | | | ✓ | RW | Real |
| 103 | Spd Reg Neg Lim Sets the negative limit of the Speed Regulator output value. The output of the Speed regulator is limited by adjustable high and low limits. | Units: P.U. Default: -3.0000 Min/Max: -6.0000/0.0000 Scale: \ Par 4 [Motor NP RPM] = 1.0 pu | | | ✓ | RW | Real |
| 104 | SrLss Spd Reg Kp Sets the proportional gain of the Speed Regulator when sensorless motor speed feedback is used. This value is automatically calculated based on the bandwidth set in Par 106 [SrLss Spd Reg BW]. Proportional gain may be manually adjusted by setting Par 106 to zero. This gain setting has no units (per unit torque) / (per unit speed error). | Default: 8.0000 Min/Max: 0.0000/200.0000 | | | ✓ | RW | Real |
| 105 | SrLss Spd Reg Ki Sets the integral gain of the Speed Regulator when sensorless motor speed feedback is used. This value is automatically calculated based on the bandwidth set in Par 106 [SrLss Spd Reg BW]. Integral gain may be manually adjusted by setting Par 106 to zero. Units are /Sec' (per unit torque/sec) / (per unit speed error). | Units: /Sec Default: 8.0000 Min/Max: 0.0000/4095.8000 | | | ✓ | RW | Real |
| 106 | SrLss Spd Reg BW Sets the bandwidth of the Speed Regulator when sensorless motor speed feedback is used. Bandwidth is also referred to as the crossover frequency. Small integral time response is approximately 1/BW and is the time to reach 63% of set point. A change to this parameter will cause an automatic update of Par 104 [SrLss Spd Reg Kp] and Par 105 [SrLss Spd Reg Ki]. To disable the automatic gain calculation, set this parameter to zero. | Units: R/S Default: 10.0000 Min/Max: 0.0000/30.0000 | | | ✓ | RW | Real |
| 107 | Slip RPM Meter Displays the present amount of adjustment being applied as slip compensation. Note: This parameter was added for firmware version 2.03. | Units: RPM Default: 0.0 Min/Max: +/- 3000.0 | | | | RO | 16-bit Integer |
| 108 | Spd Reg TP Sel Enter or write a value to select Speed Regulator data displayed in Par 109 [Spd Reg TP Data]. Note: The values for options 10 & 11 were changed to "Reserved" for firmware version 2.04. | Default: 0 = "Zero" Options: 0 = "Zero" 27 = "Spd FiltOut" 1 = "Iq Rate BW" 28 = "Servo Lock" 2 = "Reserved" 29 = "Spd+ServLock" 3 = "PGain Max BW" 30 = "Prop Output" 4 = "BW Limit" 31 = "Intg Input" 5 = "InertiaMaxBW" 32 = "Scld Int Pre" 6 = "BW Lim Stat" 33 = "Sel Int Pre" 7 = "BW Select" 34 = "Droop Output" 8 = "Totl Inertia" 35 = "Out Lim Stat" 9 = "TI Lim Stat" 36 = "Intg Hold" 10 = "Reserved" 37 = "SrLss ZeroWe" 11 = "Reserved" 38 = "I GainParLim" 12 = "I Rate Limit" 39 = "P GainParLim" 13 = "I RtLim Stat" 40 = "SrvLck ParLm" 14 = "PGain Max" 41 = "AntiBkup PLm" 15 = "GnMx LimStat" 42 = "Droop ParLim" 16 = "Damping" 43 = "Pos Lim Stat" 17 = "Dmp Lim Stat" 44 = "Neg Lim Stat" 18 = "Reserved" 45 = "Limiter Out" 19 = "SrLs KpMxBW" 46 = "Active Pgain" 20 = "SrLs BWLimit" 47 = "Active Igain" 21 = "SrLsInrtMxBW" 48 = "Reserved" 22 = "SrLsBWSelect" 49 = "Reserved" 23 = "SrLs BW Calc" 50 = "Reserved" 24 = "Snsr BW Calc" 51 = "Reserved" 25 = "Reserved" 52 = "Reserved" 26 = "Reserved" 53 = "Reserved" | | | | | |
| 109 | Spd Reg TP Data Displays the data selected by Par 108 [Spd Reg TP Sel]. | Units: P.U. Default: 0.0000 Min/Max: +/-8.0000 pu | | | | RO | Real |
| 110 | Speed/TorqueMode Selects the source for the drive torque reference. Note: Values 7 & 8 were added for firmware version 3.01. | Default: 1 = "Speed Reg" Options: 0 = "Zero Torque" 5 = "Sum Spd/Trq" 1 = "Speed Reg" 6 = "AbsMnSpd/Trq" 2 = "Torque Ref" 7 = "SLAT Minimum" 3 = "Min Spd/Trq" 8 = "SLAT Maximum" 4 = "Max Spd/Trq" | | | | | |
| 111 | Torque Ref 1 Supplies an external motor torque reference to the drive. This parameter is divided by the value in Par 112 [Torq Ref1 Div]. A value of 1.0 represents rated torque of the motor. | Default: 0.0000 Min/Max: +/-2200000000.0000 Scale: 1.0 Rated Motor Torque | | | ✓ | RW | Real |
| 112 | Torque Ref1 Div Par 111 [Torque Ref 1] is divided by this number. Use this parameter to scale the value of Par 111 [Torque Ref 1]. | Default: 1.0000 Min/Max: +/-2200000000.0000 | | | ✓ | RW | Real |

| No. | Name Description | Values | | Linkable | Read-Write | Data Type |
|-----|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------|--|----------|------------|-----------|
| 113 | Torque Ref 2 Supplies an external motor torque reference to the drive. This parameter is multiplied by the value in Par 114 [Torq Ref2 Mult]. A value of 1.0 represents rated torque of the motor. | Default: 0.0000 Min/Max: -/+2200000000.0000 Scale: 1.0 Rated Motor Torque | | ✓ | RW | Real |
| 114 | Torque Ref2 Mult Par 113 [Torque Ref 2] is multiplied by this number. Use this parameter to scale the value of Par 113 [Torque Ref 2]. | Default: 1.0000 Min/Max: -/+2200000000.0000 | | ✓ | RW | Real |
| 115 | Torque Trim The amount added to Par 111 [Torque Ref 1] and Par 113 [Torque Ref 2] before the Speed/Torque Mode Selector. A value of 1.0 represents rated torque of the motor. | Units: P.U. Default: 0.0000 Min/Max: -/+8.0000 pu Scale: 1.0 Rated Motor Torque | | ✓ | RW | Real |
| 116 | Torque Step The amount added to the selected Torque Reference before notch filtering or limits are applied. A value of 1.0 represents rated torque of the motor. | Units: P.U. Default: 0.0000 Min/Max: -/+8.0000 pu Scale: 1.0 Rated Motor Torque | | ✓ | RW | Real |
| 117 | NotchAttenuation Sets the depth for the Notch Filter. Attenuation is the ratio of the output to the input at the notch frequency. An attenuation of 30 means that the notch output is 1/30 th of the input at the specified frequency. Calculation: Attenuation = Input / Output  | Default: 50 Min/Max: 0/500 | | ✓ | RW | Real |
| 118 | Notch Filt Freq The center frequency for Notch filter. To disable, set to zero (0). | Units: Hz Default: 0.0000 Min/Max: 0.0000/500.0000 | | ✓ | RW | Real |
| 119 | SLAT ErrorSetpnt Determines the RPMs at which the drive will switch from speed mode to the Speed Limited Adjustable Torque (SLAT) min. or SLAT max. mode, identified in Par 110 [Speed/Torque Mode] bit 7 "SLAT Minimum" or bit 8 "SLAT Maximum". Note: This parameter was added for firmware version 3.01. | Units: RPM Default: 0.005 Min/Max: 0.0/0.1 | | ✓ | RW | Real |
| 120 | SLAT Dwell Time SLAT control dwell time. The time in seconds that the drive can be above the error setpoint in Par 119 [SLAT ErrorSetpnt] before returning to the SLAT min. or SLAT max. mode. Note: This parameter was added for firmware version 3.01. | Units: Sec Default: 0.0 Min/Max: 0.0/2.0 | | ✓ | RW | Real |
| 123 | Trq PosLim Actl Sets the internal torque limit for positive torque reference values. The positive internal motor torque will not be allowed to exceed this value. | Units: P.U. Default: 1.0 Min/Max: 0.0/8.0 | | | RO | Real |
| 124 | Trq NegLim Actl Sets the internal torque limit for negative torque reference values. The internal negative motor torque will not be allowed to exceed this value. | Units: P.U. Default: -1.0 Min/Max: -8.0/0.0 | | | RO | Real |
| 125 | Torque Pos Limit Sets the external torque limit for positive torque reference values. The external positive motor torque will not be allowed to exceed this value. | Units: P.U. Default: 2.0000 Min/Max: 0.0000/8.0000 | | ✓ | RW | Real |
| 126 | Torque Neg Limit Sets the external torque limit for negative torque reference values. The external negative motor torque will not be allowed to exceed this value. | Units: P.U. Default: -2.0000 Min/Max: -8.0000/0.0000 | | ✓ | RW | Real |
| 127 | Mtring Power Lim Sets the maximum motoring (positive) power of the drive. This can be calculated by multiplying the desired maximum motor torque and the maximum motor speed. A value of 1.0 = nominal motor power. | Units: P.U. Default: 8.0000 Min/Max: 0.0000/8.0000 | | ✓ | RW | Real |
| 128 | Regen Power Lim Sets the maximum regenerative (negative) power of the drive. This can be calculated by multiplying the desired maximum motor torque and the maximum motor speed. A value of 1.0 = nominal motor power. Note: The default value for this parameter was changed from -1.0000 to -0.5000 for firmware version 2.03. | Units: P.U. Default: -0.5000 Min/Max: -8.0000/0.0000 | | ✓ | RW | Real |
| 129 |  Atune Trq Ref Sets the motor torque that is applied to the motor during the flux current and inertia tests. Note: The minimum value for this parameter was changed from 0.2500 to 0.2000 for firmware version 2.03. | Units: P.U. Default: 0.50 Min/Max: 0.2/1.0 Scale: 1.0 = P.U. Motor to Torque | | | RW | Real |

| No. | Name Description | Values | | | Linkable | Read-Write | Data Type | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
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| 130 | Trq Ref TP Sel Enter or write a value to select torque reference data displayed in Par 131 [Trq Ref TP Data]. Note: The value for option 5 was changed to "Reserved" for firmware version 2.04. | Default: 0 = "Zero" Options: 0 = "Zero" 16 = "Neg Lim Src" 1 = "Scale Output" 17 = "MPwr Par Lim" 2 = "Spd Torque" 18 = "RPwr Par Lim" 3 = "Trq Mode Out" 19 = "+Trq ParLim" 4 = "Actv TrqMode" 20 = "-Trq ParLim" 5 = "Reserved" 21 = "Nom Bus Volt" 6 = "Trq En Input" 22 = "Bus Volt Hys" 7 = "NotchFiltOut" 23 = "Bus Reg Ref" 8 = "NotchFilt In" 24 = "Bus Reg Err" 9 = "Trq Lim In" 25 = "Bus Reg Intg" 10 = "Bus Reg Out" 26 = "BusReg Clamp" 11 = "Pos Pwr Lim" 27 = "BusRegOutput" 12 = "Neg Pwr Lim" 28 = "IAA Filt Out" 13 = "Pos Atun Trq" 29 = "IAA dVf/dt" 14 = "Neg Atun Trq" 30 = "MC Trq Lim" 15 = "Pos Lim Src" 31 = "IqActTrqLim" | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 131 | Trq Ref TP Data Displays the data selected by Par 130 [Trq Ref TP Sel]. | Units: P.U. Default: 0.0 Min/Max: +/-8.0 pu Scale: 1.0 = P.U. Motor to Torque | | | | RO | Real | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 132 | Inert Adapt Sel Configures the Inertia Adaptation Algorithm (IAA Function). <ul style="list-style-type: none">Bit 0 "Inertia Adapt" when set to 1 (on), the Inertia Adaptation function will effect enhanced stability, higher bandwidths and dynamic stiffness. Useful when systems with a gear-box becomes disconnected from the load. Also used with motors that have very little inertia that otherwise lack dynamic stiffness, even at high bandwidths.Bit 1 "Load Est" when set to 1 (on), the Load Estimate option removes or greatly reduces load disturbances and gives quicker system response.Bit 2 "First Diff" selects the first difference feedback for Inertia Adaptation. Notes: When setting both Bit 0 & 1, stability is enhanced and load disturbances are removed. Bit 2 "First Diff" was added for firmware version 3.01. Options <table><tr><th></th><th>Reserved</th><th>Reserved</th><th>Reserved</th><th>Reserved</th><th>Reserved</th><th>Reserved</th><th>Reserved</th><th>Reserved</th><th>Reserved</th><th>Reserved</th><th>Reserved</th><th>Reserved</th><th>Reserved</th><th>Reserved</th><th>First Diff</th><th>Load Est</th><th>Inertia Adapt</th></tr><tr><td>Default</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td></tr><tr><td>Bit</td><td>16</td><td>15</td><td>14</td><td>13</td><td>12</td><td>11</td><td>10</td><td>9</td><td>8</td><td>7</td><td>6</td><td>5</td><td>4</td><td>3</td><td>2</td><td>1</td><td>0</td></tr></table> 0 = False 1 = True | | | | | | | | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | First Diff | Load Est | Inertia Adapt | Default | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | Bit | 16 | 15 | 14 | 13 | 12 | 11 | 10 | 9 | 8 | 7 | 6 | 5 | 4 | 3 | 2 | 1 | 0 |
| | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | First Diff | Load Est | Inertia Adapt | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Default | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Bit | 16 | 15 | 14 | 13 | 12 | 11 | 10 | 9 | 8 | 7 | 6 | 5 | 4 | 3 | 2 | 1 | 0 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 133 | Inert Adapt BW This parameter sets the bandwidth of the Inertia Adaptation function when the IAA function is selected (Par 132 [Inert Adapt Sel], bit 0 = 1). Typical IAA bandwidths range from 70 to 150 rad/sec with 100 rad/sec nominal best. If the Load Estimate function is selected (Par 132 [Inert Adapt Sel], bit 0 = 1), then this parameter sets the natural frequency of a filter in rad/sec. Typical values range from 10 to 150 rad/sec with higher values being more responsive to disturbances but with increased system noise. There is no nominal best value, but 40 rad/sec is a suggested starting point. This adjustment may not function well in 'sloppy' geared systems. If both Inertia Adaptation and Load Estimate functions are active, use a bandwidth setting of 100 rad/sec. | Units: R/S Default: 100.0000 Min/Max: 10.0000/250.0000 | | | ✓ | RW | Real | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 134 | Inert Adapt Gain This parameter sets a multiplier of system inertia when the Inertia Adaptation function is selected (Par 132 [Inert Adapt Sel], bit 0 = 1). Higher values may cause high frequency ringing, while smaller values may cause fundamental load instability. A typical value is 0.5 This parameter has no affect on the Load Estimate function. | Default: 0.500 Min/Max: 0.300/1.000 | | | ✓ | RW | Real | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 136 137 138 | Skip Speed 1 Skip Speed 2 Skip Speed 3 Sets a frequency at which the drive will not operate. [Skip Speed 1 - 3] and Par 139 [Skip Speed Band] must not equal 0. Note: These parameters were added for firmware version 2.03. | Units: RPM Default: 0.0 Min/Max: +/-30000.0 | | | ✓ | RW | 16-bit Integer | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 139 | Skip Speed Band Determines the bandwidth around a skip frequency. [Skip Speed Band] is split, applying 1/2 above and 1/2 below the actual skip frequency. The same bandwidth applies to all skip frequencies. Note: This parameter was added for firmware version 2.03. | Units: RPM Default: 0.0 Min/Max: 0.0/1000.0 | | | ✓ | RW | 16-bit Integer | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

To access Preset Speed 1, set parameter 27 [Speed Ref A Sel] or 28 [Speed Ref B Sel] to 5 - "Preset Spd 1."

| No. | Name Description | Values | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
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No.

Name
Description

Values

Linkable

Read-Write

Data Type

154

Stop Dwell Time

Sets an adjustable delay time between detecting zero speed and disabling the speed and torque regulators, when responding to a stop command. For more information, please see [Stop Dwell Time on page C-7](#).

Important: Consult industry and local codes when setting the value of this parameter.

Units:
Default: 0.0000
Min/Max: 0.0000/10.0000

✓

RW

Real

155

Logic Status

Displays the status - condition of the drive.

Options

| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|--------------|--------------|--------------|--------------|----------|--------------|--------------|--------------|------------|-------------|--------------|------------|-----------|-----------|--------------|------------|-----------|--------------|-------------|--------------|----------|-------|------------|-------|---------|---------|--------------|--------------|------------|-------------|---------|--------|---|
| LogixPresent | Spd Ref Act2 | Spd Ref Act1 | Spd Ref Act0 | Reserved | RunCommanded | Start Active | PositionMode | Speed Mode | Torque Mode | Hw Enable On | Spd Commis | MC Commis | MC Active | Above Setpt2 | At Setpt 1 | Enable On | At Setpt Spd | At Zero Spd | Tach Loss Sw | At Limit | Ready | Flash Mode | Alarm | Faulted | Jogging | Decelerating | Accelerating | Actual Dir | Command Dir | Running | Active | |
| Default | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| Bit | 31 | 30 | 29 | 28 | 27 | 26 | 25 | 24 | 23 | 22 | 21 | 20 | 19 | 18 | 17 | 16 | 15 | 14 | 13 | 12 | 11 | 10 | 9 | 8 | 7 | 6 | 5 | 4 | 3 | 2 | 1 | 0 |

| | | |
|-------|----------------|---------------------------------------------------------------------------------------------------------------|
| Bit | Name | Current Function |
| 0 | Active | Drive is controlling motor |
| 1 | Running | Run command received & controlling motor |
| 2 | Command Dir | Commanded direction is forward |
| 3 | Actual Dir | Actual motor direction is forward |
| 4 | Accelerating | Motor is increasing speed |
| 5 | Decelerating | Motor is decreasing speed |
| 6 | Jogging | Jog command received & controlling motor |
| 7 | Faulted | Exception event that causes a fault has occurred |
| 8 | Alarm | Exception event that causes an alarm has occurred |
| 9 | Flash Mode | Flash upgrade in progress |
| 10 | Ready | Enable input is high & drive is fault free |
| 11 | At Limit | Speed, Power, Current or Torque is being limited, refer to Par 304 |
| 12 | Tach Loss SW | Failure is detected in primary speed or position feedback device & drive has switched to secondary device |
| 13 | At Zero Spd | Speed feedback is within limits defined in Par 160 |
| 14 | At Setpt Spd | Speed feedback is within limits defined in Par 41 and Par 171 |
| 15 | Enable On | |
| 16 | At Setpt 1 | Par 172 value is within limits defined by Par 173 and Par 174 |
| 17 | Above Setpt 2 | Par 175 value is within limits defined by Par 176 and Par 177 |
| 18 | MC Active | Drive is controlling motor (same as enabled) |
| 19 | MC Commis | Motor control commissioning in progress |
| 20 | Spd Commis | Speed control commissioning in progress |
| 21 | Hw Enable On | |
| 22 | Torque Mode | Par 110 value is 2, 3, 4, 5 or 6 |
| 23 | Speed Mode | Par 110 value is 1 & position control is not enabled |
| 24 | Position Mode | Position control active & Par 110 value is not 2, 3, 4, 5 or 6 |
| 25 | Start Active | Start command received & controlling motor |
| 26 | Command Run | Run command received |
| 28-30 | Spd Ref Act1-3 | |
| 31 | LogixPresent | |

0 = False
1 = True

156

Start Inhibits

Indicates which condition is preventing the drive from starting or running.
Note: Bit 18 "MC Config" was added to this parameter for firmware version 2.03. Added bit 20 "High BusVolt" for firmware version 4.001.

Options

| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|--------------|----------|-----------|--------------|--------------|--------------|-------------|-------------|--------------|-------------|-------------|-----|-------|-------------|----------|------------|------------|--------------|--------------|-----------|---------|---|
| Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | High BusVolt | Reserved | MC Config | SafeOff Enbl | GateShutDown | PositFdbkSel | PM Mtr Fdbk | Motin Shdwn | DigIn Config | Bus PreChrg | Encoder PPR | Jog | Start | Flash Upgrd | Power EE | Power Loss | SW Lim Stp | SW Coast Stp | SW Ramp Stop | No Enable | Faulted | |
| Default | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| Bit | 31 | 30 | 29 | 28 | 27 | 26 | 25 | 24 | 23 | 22 | 21 | 20 | 19 | 18 | 17 | 16 | 15 | 14 | 13 | 12 | 11 | 10 | 9 | 8 | 7 | 6 | 5 | 4 | 3 | 2 | 1 | 0 |




0 = False
1 = True


| No. | Name Description | Values | | | | Linkable | Read-Write | Data Type |
|-----|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|----------|------------|-----------------------|
| 157 | Logic Ctrl State Indicates which logic control functions are enabled. <ul style="list-style-type: none">• Bit 22 "S Tst FulSpd" set to "1" indicates that the Slip Auto Tune function is active• Bit 23 "Slip Test En" set to "1" indicates that the drive is at speed for the Auto Tune function. Note: Bits 22 and 23 were added for firmware version 3.01. | | | | | | | |
| | Options | ProcsTrim En Cmd Dir Upol Lgx I/O Cnx Lgx Run Mode Reserved VP Gate Enbl MC Gate Enbl Ramp Hold Slip Test En S Tst FulSpd PM Offset Rq Mtr Dir Req Pwr Diag Req MC Atune Req FTD Ramp EN MC En Req RThru Flux DC Brake En Mtr Sim Mode RThru Coast CurRef En Forced Spd Trq Ref En Spd Reg En SReg IntgHld CurLim Stop J Tst FulSpd Inert Tst En PositionEnbl SRef SCrv En SRef Ramp En Spd Ref En | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | 31 30 29 28 27 26 25 24 23 22 21 20 19 18 17 16 15 14 13 12 11 10 9 8 7 6 5 4 3 2 1 0 | | | | 0 = False 1 = True |
| 158 | Drive Logic Rslt This is the logic output of the logic parser that combines the outputs from the DPI ports and the DriveLogix controller to determine drive control based on the masks and owners. The control bits are reflected in Par 152 [Applied LogicCmd] bits 16-31. | | | | | | | |
| | Options | Reserved Spd Ref Sel2 Spd Ref Sel1 Spd Ref Sel0 Reserved Reserved Coast Stop CurLim Stop Jog 2 Reserved Reverse Forward Clear Fault Jog 1 Start Normal Stop Reserved Spd Ref Sel2 Spd Ref Sel1 Spd Ref Sel0 Reserved Reserved Coast Stop CurLim Stop Jog 2 Reserved Reverse Forward Clear Fault Jog 1 Start Normal Stop | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | 31 30 29 28 27 26 25 24 23 22 21 20 19 18 17 16 15 14 13 12 11 10 9 8 7 6 5 4 3 2 1 0 | | | | 0 = False 1 = True |
| 159 | DigIn ConfigStat This parameter indicates the status of the Digital Inputs. | Default: 0 = "DigIn Ok" Options: 0 = "DigIn Ok" 4 = "Strt+UnLatch" 1 = "2 Run/Starts" 5 = "2 Jog1's" 2 = "Start NoStop" 6 = "2 Jog2's" 3 = "Run+Latched" 7 = "2Fwd's/Rev's" | | | | | | |
| 160 | Zero Speed Lim Establishes a band around zero speed that is used to determine when the drive considers the motor to be at zero speed. | Units: RPM Default: 17.6400 Min/Max: 0.0000/882.0000 Scale: Par 4 [Motor NP RPM] = 1.0pu | | | | | | Real |
| 161 | Logic TP Sel Enter or write a value to select logic status indication displayed in Par 162 [Logic TP Data]. | Default: 0 = "Zero" Options: 0 = "Zero" 28 = "Sys Friction" 1 = "Avg Spd Ref" 29 = "Iq proc time" 2 = "Avg Spd Fdbk" 30 = "Enable Inhib" 3 = "LastStopMode" 31 = "DI Src Index" -(0=None) 32 = "DI SrcRevidx" -(1=Coast) 33 = "DI TrendTrig" -(2=Current Limit) 34 = "DI Prchg Ena" -(3=Ramp) 35 = "Enable State" -(4=Torque Mode) 36 = "LID Revision" 4 = "Spd Ref Sel" 37 = "DI MOP Incr" 5 = "Start State" 38 = "DI MOP Decr" 6 = "Run State" 39 = "DI MOP Reset" 7 = "Stop State" 40 = "Cmd Term Blk" 8 = "PrChrg Logic" 41 = "Cmd DPI 1" 9 = "Meas State" 42 = "Cmd DPI 2" 10 = "Data State" 43 = "Cmd DPI 3" 11 = "Diag State" 44 = "Cmd DPI 4" 12 = "MC CalcState" 45 = "Cmd DPI 5" 13 = "Task 1 time" 46 = "Cmd DPI 6" 14 = "Task 1 max" 47 = "Cmd ELC" 15 = "Task 2 time" 48 = "Cmd Debugger" 16 = "Task 2 max" 49 = "Reserved" 17 = "Task 3 time" 50 = "SelSw Posit" 18 = "Task 3 max" 51 = "DI SelSw 00" 19 = "BkGnd Time" 52 = "DI SelSw 01" 20 = "BkGnd Max" 53 = "DI SelSw 02" 21 = "Task 1 %" 54 = "DI SelSw 03" 22 = "Task 2 %" 55 = "Ids Motoring" 23 = "Task 3 %" 56 = "IqsRef Motor" 24 = "BkGnd %" 57 = "Ids Regen" 25 = "RThru State" 58 = "IqsRef Regen" 26 = "RThru Timer" 27 = "Health State" | | | | | | |
| 162 | Logic TP Data Displays the indication selected by Par 161 [Logic TP Sel]. | Default: 0.0000 Min/Max: -/+2200000000.0000 | | | | | | Real |

| No. | Name Description | Values | | | Linkable | Read-Write | Data Type | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|---------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------|----------|----------|------------|----------------|----------|----------|----------|----------|----------|----------|----------|----------|-------------|-------------|----------|-------------|-------------|----------|----------|----------|----------|----------|------------|------------|-----------|------------|------------|-----------|------------|----------|-----------|---------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|-----|-----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|---|---|---|---|---|---|---|---|---|-----------------------|-----------------------|--|--|--|
| 163 | Stop Oper TP Sel Enter or write a value to select data displayed in Par 164 [StpOper TpData] at the time of the last initiated stop. | Default: 0 = "Zero" Options: 0 = "Zero" 14 = "ZM1 Spd Fdbk" 1 = "Logic State" 15 = "Speed Ref" 2 = "Logic Input" 16 = "Avg Spd Ref" 3 = "Lcl In State" 17 = "ZM1 Spd Ref" 4 = "Logic Status" 18 = "SReg PI Out" 5 = "Run Inhibit" 19 = "Trq Ref" 6 = "Logic Ctrl" 20 = "TrqRef Stat" 7 = "Mtr Ctrl Cmd" 21 = "DC Bus Volts" 8 = "Mtr Ctrl Ack" 22 = "Motor Volts" 9 = "Reserved" 23 = "Mtr Current" 10 = "Flt Status 1" 24 = "Motor Flux" 11 = "Flt Status 2" 25 = "Motor Freq" 12 = "Motor Speed" 26 = "Motor Power" 13 = "Avg Spd Fdbk" 27 = "Fit Status 3" | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 164 | StopOper TP Data Displays the data selected by Par 163 [Stop Oper TP Sel]. | Default: 0 Min/Max: -/+2147483648 | | | | RO | 32-bit Integer | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 165 | Tune Test Status Indicates which test (if any) is in progress. • Value 7 is retained and is used to continue the Auto Tune test from the last point at which it was stopped. Notes: Value 5 was changed to "Reserved" for firmware version 2.04. Value 7 "Mtr+Sys J" was changed to "Slip Test" for firmware version 3.01. Value 8 "Find Home" was added for firmware version 3.03. | Default: 0 = "None" Options: 0 = "None" 5 = "Reserved" 1 = "MC Autotune" 6 = "Sys Inertia" 2 = "Power Diag" 7 = "Slip Test" 3 = "Motor Direct" 8 = "Find Home" 4 = "PM Offset" | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 166 | Motor Ctrl Cmmnd Displays the command bits to the Motor Control Processor from the Velocity Processor. | <table><tr><td>Options</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Fault Reset</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Base Block</td><td>Reserved</td><td>Reserved</td><td>Torque Run</td><td>Flux Run</td><td>CP Enable</td></tr><tr><td>Default</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td></tr><tr><td>Bit</td><td>31</td><td>30</td><td>29</td><td>28</td><td>27</td><td>26</td><td>25</td><td>24</td><td>23</td><td>22</td><td>21</td><td>20</td><td>19</td><td>18</td><td>17</td><td>16</td><td>15</td><td>14</td><td>13</td><td>12</td><td>11</td><td>10</td><td>9</td><td>8</td><td>7</td><td>6</td><td>5</td><td>4</td><td>3</td><td>2</td><td>1</td><td>0</td></tr></table> | Options | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | Fault Reset | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | Base Block | Reserved | Reserved | Torque Run | Flux Run | CP Enable | Default | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | Bit | 31 | 30 | 29 | 28 | 27 | 26 | 25 | 24 | 23 | 22 | 21 | 20 | 19 | 18 | 17 | 16 | 15 | 14 | 13 | 12 | 11 | 10 | 9 | 8 | 7 | 6 | 5 | 4 | 3 | 2 | 1 | 0 | 0 = False 1 = True | | | | |
| Options | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | Fault Reset | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | Base Block | Reserved | Reserved | Torque Run | Flux Run | CP Enable | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Default | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Bit | 31 | 30 | 29 | 28 | 27 | 26 | 25 | 24 | 23 | 22 | 21 | 20 | 19 | 18 | 17 | 16 | 15 | 14 | 13 | 12 | 11 | 10 | 9 | 8 | 7 | 6 | 5 | 4 | 3 | 2 | 1 | 0 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 167 | Motor Ctrl Ackn Displays the Motor Control Processor's acknowledgment to the Velocity Processor for the Motor Control Command bits. | <table><tr><td>Options</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Fault Reset</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Power Diag</td><td>Precharge</td><td>Torque Run</td><td>Flux Run</td><td>CP Enable</td></tr><tr><td>Default</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td></tr><tr><td>Bit</td><td>31</td><td>30</td><td>29</td><td>28</td><td>27</td><td>26</td><td>25</td><td>24</td><td>23</td><td>22</td><td>21</td><td>20</td><td>19</td><td>18</td><td>17</td><td>16</td><td>15</td><td>14</td><td>13</td><td>12</td><td>11</td><td>10</td><td>9</td><td>8</td><td>7</td><td>6</td><td>5</td><td>4</td><td>3</td><td>2</td><td>1</td><td>0</td></tr></table> | Options | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | Fault Reset | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | Power Diag | Precharge | Torque Run | Flux Run | CP Enable | Default | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | Bit | 31 | 30 | 29 | 28 | 27 | 26 | 25 | 24 | 23 | 22 | 21 | 20 | 19 | 18 | 17 | 16 | 15 | 14 | 13 | 12 | 11 | 10 | 9 | 8 | 7 | 6 | 5 | 4 | 3 | 2 | 1 | 0 | 0 = False 1 = True | | | |
| Options | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | Fault Reset | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | Power Diag | Precharge | Torque Run | Flux Run | CP Enable | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Default | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Bit | 31 | 30 | 29 | 28 | 27 | 26 | 25 | 24 | 23 | 22 | 21 | 20 | 19 | 18 | 17 | 16 | 15 | 14 | 13 | 12 | 11 | 10 | 9 | 8 | 7 | 6 | 5 | 4 | 3 | 2 | 1 | 0 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 168 | Normal Stop Mode Sets the method of stopping the drive when a stop command is given. Normal Stop command and the RUN input changing from true to false will command a Normal Stop. Ramp Stop = decelerates to zero speed at the decel rate Curlim Stop = Max torque / current applied until zero speed Coast Stop = power removed from motor, motor coasts to zero | Default: 0 = "Ramp Stop" Options: 0 = "Ramp Stop" 1 = "CurLim Stop" 2 = "Coast Stop" | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 169 | SrLss ZeroSpdLim Functionally equivalent to Par 160 [Zero Speed Lim], but is used exclusively in Sensorless speed mode. The value is automatically set from Par 3 [Motor NP Hertz], Par 4 [Motor NP RPM] or Par 7 [Motor Poles]. The automatic setting corresponds to the rated slip speed of the motor (synchronous speed - nameplate speed). The value can be manually set. | Units: RPM Default: 49.9975 Min/Max: 0.0000/875.0000 | | | ✓ | RW | Real | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 170 | Flying StartGain This parameter is currently not used. Note: This parameter was added for firmware version 2.03. | Default: 4000 Min/Max: 0/32767 | | | | RW | 16-bit Integer | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 171 | Set Speed Lim Creates a tolerance - hysteresis band around the value in Par 41 [Limited Spd Ref] for comparison to average speed feedback. The comparison controls bit 14 "At Setpt Spd" of Par 155 [Logic Status]. In general bit 14 "At Setpt Spd" turns on when the feedback is within the tolerance of the reference. • Turn-on level for rising feedback = Limited Spd Ref - Limit. • Turn-off level for rising feedback = Limited Spd Ref + 2(Limit). • Turn-on level for falling feedback = Limited Spd Ref + Limit. • Turn-off level for falling feedback = Limited Spd Ref - 2(Limit). | Units: RPM Default: 17.6400 Min/Max: 0.0000/882.0000 Scale: Par 4 [Motor NP RPM] = 1.0pu | | | ✓ | RW | Real | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 172 | Setpt 1 Data Provides data for comparison to Par 173 [Setpt1 TripPoint], driving bit 16 "At Setpt 1" of Par 155 [Logic Status]. For more information, please see Setpt 1 Data on page C-8 . | Units: P.U. Default: 0.0000 Min/Max: -/+8.0000 pu | | | ✓ | RW | Real | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

| No. | Name Description | Values | | | Linkable | Read-Write | Data Type |
|-----|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|--|----------|------------|-----------|
| 173 | Setpt1 TripPoint Provides the midpoint for operation of bit 16 "At Setpt 1" of Par 155 [Logic Status]. | Units: P.U. Default: 0.1000 Min/Max: +/-8.0000 pu | | | ✓ | RW | Real |
| 174 | Setpt 1 Limit Creates a tolerance - hysteresis band around the value in Par 173 [Setpt1 TripPoint]. • Turn-on level for ascending data = TripPoint - Limit. • Turn-off level for ascending data = TripPoint + 2(Limit). • Turn-on level for descending data = TripPoint + Limit. • Turn-off level for descending data = TripPoint - 2(Limit). | Units: P.U. Default: 0.0100 Min/Max: 0.0000/0.5000 | | | ✓ | RW | Real |
| 175 | Setpt 2 Data Provides data for comparison to Par 176 [Setpt2 TripPoint], driving bit 17 "Above Setpt 2" of Par 155 [Logic Status]. For more information, please see Setpt 2 Data on page C-8 . | Units: P.U. Default: 0.0000 Min/Max: +/-8.0000 pu | | | ✓ | RW | Real |
| 176 | Setpt2 TripPoint Provides the midpoint for operation of bit 17 "Above Setpt 2" of Par 155 [Logic Status]. | Units: P.U. Default: 0.2000 Min/Max: +/-8.0000 pu | | | ✓ | RW | Real |
| 177 | Setpt 2 Limit Creates a tolerance - hysteresis band around the value in Par 176 [Setpt2 TripPoint]. For positive setpoints: • Turn-on level = TripPoint • Turn-off level = TripPoint - Limit. For negative setpoints: • Turn-on level = TripPoint • Turn-off level = TripPoint + Limit. | Units: P.U. Default: 0.0100 Min/Max: 0.0000/0.5000 | | | ✓ | RW | Real |
| 178 | PI TP Sel Enter or write a value to select Process Control PI data displayed by Par 179 [PI TP Data]. The values for options 1 & 8 were changed to "Reserved" for firmware version 2.04. | Default: 0 = "Zero" Options: 0 = "Zero" 7 = "Status Hold" 1 = "Reserved" 8 = "Reserved" 2 = "LPF Output" 9 = "Reset Status" 3 = "P Gain Term" 10 = "Time Axis En" 4 = "Reg Output" 11 = "Enbl Status" 5 = "On Intg Lim" 12 = "Out Max Lim" 6 = "On Out Limit" 13 = "Out Min Lim" | | | | | |
| 179 | PI TP Data Displays the data selected by Par 178 [PI TP Sel]. | Units: P.U. Default: 0.0000 Min/Max: +/-8.0000 pu | | | | RO | Real |
| 180 | PI Output The final output of the Process Control regulator. A value of 1 can represent either base motor speed, motor rated torque, or 100% for some external function. | Units: P.U. Default: 0.0000 Min/Max: +/-8.0000 pu | | | | RO | Real |
| 181 | PI Reference The reference input for the process control regulator. A value of 1 can represent either base motor speed, motor rated torque, or 100% for some external function. | Units: P.U. Default: 0.0000 Min/Max: +/-8.0000 pu | | | ✓ | RW | Real |
| 182 | PI Feedback The feedback input for the process control regulator. A value of 1 can represent either base motor speed, motor rated torque, or 100% for some external function. | Units: P.U. Default: 0.0000 Min/Max: +/-8.0000 pu | | | ✓ | RW | Real |
| 183 | PI Error Displays the error of the process trim reference minus the process trim feedback. | Units: P.U. Default: 0.0000 Min/Max: +/-8.0000 pu | | | | RO | Real |
| 184 | PI Lpass Filt BW Sets the bandwidth of a single pole filter applied to the error input of the Process Control regulator. The input to the filter is the difference between Par 181 [PI Reference] and Par 182 [PI Feedback]. The output of this filter is used as the input to the process control regulator. | Units: R/S Default: 0.0000 Min/Max: 0.0000/500.0000 | | | ✓ | RW | Real |
| 185 | PI Preload Presets the integrator of the Process Control regulator. | Units: P.U. Default: 0.0000 Min/Max: +/-8.0000 pu | | | ✓ | RW | Real |
| 186 | PI Prop Gain Controls the proportional gain of the Process Control regulator. If the proportional gain is 1.0, the regulator output equals 1 pu for 1 pu error. | Default: 8.0000 Min/Max: 0.0000/200.0000 | | | ✓ | RW | Real |
| 187 | PI Integ Time Controls the integral gain of the Process Control regulator. If the integrator time is 1.0, the regulator output equals 1 pu in 1 second for 1 pu error. | Units: /Sec Default: 8.0000 Min/Max: 0.0000/4000.0000 | | | ✓ | RW | Real |
| 188 | PI Integ HLim The high limit of the integral gain channel for the Process Control regulator. A value of 1 can represent either base motor speed, motor rated torque, or 100% for some external function. | Units: P.U. Default: 0.1000 Min/Max: 0.0000/8.0000 | | | ✓ | RW | Real |
| 189 | PI Integ LLim The low limit of the integral gain channel for the Process Control regulator. A value of 1 can represent either base motor speed, motor rated torque, or 100% for some external function. | Units: P.U. Default: -0.1000 Min/Max: -8.0000/0.0000 | | | ✓ | RW | Real |

[illegible]

| No. | Name Description | Values | | | Linkable | Read-Write | Data Type | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|---------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------|----------|----------|----------|------------|----------------|----------|----------|----------|----------|----------|----------|----------|-------------|-------------|-------------|-------------|---------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|-----|----|----|----|----|----|----|---|---|---|---|---|---|---|---|---|---|--|--|--|--|
| 211 | PeakDtct Status Status of peak/level detectors. A peak detector sets its "Change" bit for one scan when it detects a peak. The "Change" bit is off when set or when the "Hold" bit is on. Options <table><tr><td></td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Peak 2 Chng</td><td>Peak 1 Chng</td></tr><tr><td>Default</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td></tr><tr><td>Bit</td><td>15</td><td>14</td><td>13</td><td>12</td><td>11</td><td>10</td><td>9</td><td>8</td><td>7</td><td>6</td><td>5</td><td>4</td><td>3</td><td>2</td><td>1</td><td>0</td></tr></table> 0 = False 1 = True | | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | Peak 2 Chng | Peak 1 Chng | Default | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | Bit | 15 | 14 | 13 | 12 | 11 | 10 | 9 | 8 | 7 | 6 | 5 | 4 | 3 | 2 | 1 | 0 | | | | |
| | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | Peak 2 Chng | Peak 1 Chng | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Default | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Bit | 15 | 14 | 13 | 12 | 11 | 10 | 9 | 8 | 7 | 6 | 5 | 4 | 3 | 2 | 1 | 0 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 212 | PkDtct1 In DInt Integer input to the first peak/level detector. | Default: 0 Min/Max: -/+2147483648 | | | ✓ | RW | 32-bit Integer | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 213 | PkDtct1 In Real Floating point input to the first peak/level detector. | Default: 0.0000 Min/Max: -/+2200000000.0000 | | | ✓ | RW | Real | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 214 | PeakDtct1 Preset The first detector (in set or hold modes) compares this value to its input for level detection. When the detector trips (in set mode) it transfers the value of this parameter to its output. | Default: 0.0000 Min/Max: -/+2200000000.0000 | | | ✓ | RW | Real | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 215 | PeakDetect1 Out Output from the first peak/level detector. | Default: 0.0000 Min/Max: -/+2200000000.0000 | | | | RO | Real | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 216 | PkDtct2 In DInt Integer input to second peak/level detector. | Default: 0 Min/Max: -/+2147483648 | | | ✓ | RW | 32-bit Integer | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 217 | PkDtct2 In Real Floating point input to second peak/level detector. | Default: 0.0000 Min/Max: -/+2200000000.0000 | | | ✓ | RW | Real | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 218 | PeakDtct2 Preset The second detector (in set or hold modes) compares this value to its input for level detection. When the detector trips (in set mode) it transfers the value of this parameter to its output. | Default: 0.0000 Min/Max: -/+2200000000.0000 | | | ✓ | RW | Real | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 219 | PeakDetect2 Out Output from the second peak/level detector. | Default: 0.00 Min/Max: 0.00/1200.00 | | | | RO | Real | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 221 | Load Estimate Displays the estimated load torque, which is the side effect of the speed observer and does not include torque to accelerate or decelerate the motor if the inertia input is correct. The value is provided for display purposes. | Units: P.U. Default: 0.0 Min/Max: -/+8.0 pu | | | | RO | Real | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 222 |  Mtr Fdbk Sel Pri Selects primary feedback device. The primary feedback device configuration must not be set to fault on an event in order to allow operational feedback switch over to the alternate feedback device set in Par 223 [Mtr Fdbk Sel Alt]. Notes: Par 485 [Motor Ctrl Mode] must be set to FOC for Sensorless feedback selection to be active. Selection 5 is only available when compatible feedback option card is installed. This parameter was changed to non-linkable for firmware version 3.01. | Default: 0 = "Encoder 0" Options: 0 = "Encoder 0" 1 = "Encoder 1" 2 = "Sensorless" 3 = "Reserved" 4 = "Motor Sim" 5 = "FB Opt Port0" | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 223 |  Mtr Fdbk Sel Alt Selects alternate feedback device if the feedback device selected in Par 222 [Mtr Fdbk Sel Pri] fails. Notes: Par 485 [Motor Ctrl Mode] must be set to FOC for Sensorless feedback selection to be active. Selection 5 is only available when compatible feedback option card is installed. This parameter was changed to non-linkable for firmware version 3.01. | Default: 2 = "Sensorless" Options: 0 = "Encoder 0" 1 = "Encoder 1" 2 = "Sensorless" 3 = "Reserved" 4 = "Motor Sim" 5 = "FB Opt Port0" | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 224 | TachSwitch Level Sets the detection level for the automatic tach loss switchover routine. A drop in feedback speed at this percent of rated speed over 0.5 msec will cause a tach switch from primary to alternate feedback device. This feature is enabled when bit 16 "Auto Tach Sw" in Par 153 [Control Options] is selected. Setting this level lower will make the tach switch detection more sensitive and lower the minimum speed at which a tach switch can occur. Setting this level higher will make the tach switch less sensitive and raise the minimum speed for tach switch detection. Note: This parameter was changed to non-linkable for firmware version 3.01. | Units: % Default: 10.0000 Min/Max: 5.0000/25.0000 | | | | RW | Real | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 225 |  Virtual Edge/Rev Set the EPR (Edges Per Revolution) scaling for calculating motor position. Used in the calculation of the position feedback such as Par 229 [MtrPosit Stimulat]. | Units: EPR Default: 4096 Min/Max: 10/16777216 | | | | RW | 32-bit Integer | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 226 | Motor Speed Est Displays the estimated motor speed, calculated when the selected feedback is sensorless or when encoderless ridthrough is enabled. | Units: RPM Default: 0.0000 Min/Max: -/+14112.0000 Scale: Par 4 [Motor NP RPM] = 1.0pu | | | | RO | Real | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 227 | Motor Posit Est Summation (or integration) of Par 226 [Motor Speed Est] scaled by the value in Par 225 [Virtual Edge/Rev]. | Default: 0 Min/Max: -/+2147483648 | | | | RO | 32-bit Integer | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

| No. | Name Description | Values | | Linkable | Read-Write | Data Type | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
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| 228 | MtrSpd Simulated The motor speed output of the motor simulator. The motor simulator provides motor speed information during setup and troubleshooting when actual motor control is not desired or possible. To use the motor simulator, enter a value of 4 in Par 222 [Mtr Fdbk Sel Pri] or Par 223 [Mtr Fdbk Sel Alt]. | Units: RPM Default: 0.0000 Min/Max: -/+14112.0000 Scale: Par 4 [Motor NP RPM] = 1.0pu | | | RO | Real | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 229 | MtrPosit Simulat The motor position output of the motor simulator. The motor simulator provides motor position information during setup and troubleshooting when actual motor control is not desired or possible. To use the motor simulator, enter a value of 4 in Par 222 [Mtr Fdbk Sel Pri] or Par 223 [Mtr Fdbk Sel Alt]. | Default: 0 Min/Max: -/+2147483648 | | | RO | 32-bit Integer | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 230 | Encdr0 Position Displays the position feedback (accumulator) from encoder 0. The value changes by a value of four times (4x) the Pulses Per Revolution (PPR) rating of the encoder for each full revolution of the encoder shaft. Used by the Velocity Position Loop (VPL) to close the position loop if position control is selected. | Default: 0 Min/Max: -/+2147483648 | | | RO | 32-bit Integer | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 231 | Encdr0 Spd Fdbk Displays the speed feedback from encoder 0. Calculated from the change of Par 230 [Encdr0 Position] and Par 232 [Encoder0 PPR]. | Units: RPM Default: 0.0000 Min/Max: -/+14112.0000 Scale: Par 4 [Motor NP RPM] = 1.0pu | | | RO | Real | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 232 |  Encoder0 PPR Sets the pulse per revolution rating of the feedback device connected to the Encoder 0 input. This parameter must be set to one of the values displayed in bold in Table 232A below. Table 232A: PPR Rating Values <table><tr><th>n =</th><th>2ⁿ =</th><th>x</th><th>mod 75</th><th>mod 125</th><th>mod 225</th><th>mod 375</th><th>mod 625</th><th>mod1125</th></tr><tr><td>0</td><td>1</td><td></td><td>75</td><td>125</td><td>225</td><td>375</td><td>625</td><td>1125</td></tr><tr><td>1</td><td>2</td><td></td><td>150</td><td>250</td><td>450</td><td>750</td><td>1250</td><td>2250</td></tr><tr><td>2</td><td>4</td><td></td><td>300</td><td>500</td><td>900</td><td>1500</td><td>2500</td><td>4500</td></tr><tr><td>3</td><td>8</td><td></td><td>600</td><td>1000</td><td>1800</td><td>3000</td><td>5000</td><td>9000</td></tr><tr><td>4</td><td>16</td><td></td><td>1200</td><td>2000</td><td>3600</td><td>6000</td><td>10000</td><td>18000</td></tr><tr><td>5</td><td>32</td><td></td><td>2400</td><td>4000</td><td>7200</td><td>12000</td><td>20000</td><td>--</td></tr><tr><td>6</td><td>64</td><td>--</td><td>--</td><td>--</td><td>--</td><td>--</td><td>--</td><td>--</td></tr><tr><td>7</td><td>128</td><td>--</td><td>--</td><td>--</td><td>--</td><td>--</td><td>--</td><td>--</td></tr><tr><td>8</td><td>256</td><td>--</td><td>--</td><td>--</td><td>--</td><td>--</td><td>--</td><td>--</td></tr><tr><td>9</td><td>512</td><td>--</td><td>--</td><td>--</td><td>--</td><td>--</td><td>--</td><td>--</td></tr><tr><td>10</td><td>1024</td><td>--</td><td>--</td><td>--</td><td>--</td><td>--</td><td>--</td><td>--</td></tr><tr><td>11</td><td>2048</td><td>--</td><td>--</td><td>--</td><td>--</td><td>--</td><td>--</td><td>--</td></tr><tr><td>12</td><td>4096</td><td>--</td><td>--</td><td>--</td><td>--</td><td>--</td><td>--</td><td>--</td></tr><tr><td>13</td><td>8192</td><td>--</td><td>--</td><td>--</td><td>--</td><td>--</td><td>--</td><td>--</td></tr><tr><td>14</td><td>16384</td><td>--</td><td>--</td><td>--</td><td>--</td><td>--</td><td>--</td><td>--</td></tr></table> | n = | 2 ⁿ = | x | mod 75 | mod 125 | mod 225 | mod 375 | mod 625 | mod1125 | 0 | 1 | | 75 | 125 | 225 | 375 | 625 | 1125 | 1 | 2 | | 150 | 250 | 450 | 750 | 1250 | 2250 | 2 | 4 | | 300 | 500 | 900 | 1500 | 2500 | 4500 | 3 | 8 | | 600 | 1000 | 1800 | 3000 | 5000 | 9000 | 4 | 16 | | 1200 | 2000 | 3600 | 6000 | 10000 | 18000 | 5 | 32 | | 2400 | 4000 | 7200 | 12000 | 20000 | -- | 6 | 64 | -- | -- | -- | -- | -- | -- | -- | 7 | 128 | -- | -- | -- | -- | -- | -- | -- | 8 | 256 | -- | -- | -- | -- | -- | -- | -- | 9 | 512 | -- | -- | -- | -- | -- | -- | -- | 10 | 1024 | -- | -- | -- | -- | -- | -- | -- | 11 | 2048 | -- | -- | -- | -- | -- | -- | -- | 12 | 4096 | -- | -- | -- | -- | -- | -- | -- | 13 | 8192 | -- | -- | -- | -- | -- | -- | -- | 14 | 16384 | -- | -- | -- | -- | -- | -- | -- | Units: PPR Default: 1024 Min/Max: 10/20000 | | RW | 16-bit Integer |
| n = | 2 ⁿ = | x | mod 75 | mod 125 | mod 225 | mod 375 | mod 625 | mod1125 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 0 | 1 | | 75 | 125 | 225 | 375 | 625 | 1125 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1 | 2 | | 150 | 250 | 450 | 750 | 1250 | 2250 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 2 | 4 | | 300 | 500 | 900 | 1500 | 2500 | 4500 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 3 | 8 | | 600 | 1000 | 1800 | 3000 | 5000 | 9000 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 4 | 16 | | 1200 | 2000 | 3600 | 6000 | 10000 | 18000 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 5 | 32 | | 2400 | 4000 | 7200 | 12000 | 20000 | -- | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 6 | 64 | -- | -- | -- | -- | -- | -- | -- | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 7 | 128 | -- | -- | -- | -- | -- | -- | -- | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 8 | 256 | -- | -- | -- | -- | -- | -- | -- | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 9 | 512 | -- | -- | -- | -- | -- | -- | -- | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 10 | 1024 | -- | -- | -- | -- | -- | -- | -- | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 11 | 2048 | -- | -- | -- | -- | -- | -- | -- | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 12 | 4096 | -- | -- | -- | -- | -- | -- | -- | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 13 | 8192 | -- | -- | -- | -- | -- | -- | -- | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 14 | 16384 | -- | -- | -- | -- | -- | -- | -- | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

| No. | Name Description | Values | | | Linkable | Read-Write | Data Type |
|-----|---------------------|--------|--|--|----------|------------|-----------|
|-----|---------------------|--------|--|--|----------|------------|-----------|

| | |
|-----|------------------|
| 233 | Encdr 0/1 Config |
|-----|------------------|

Encoder 0/1 Config
Specifies the configuration options for the encoder 0 and encoder 1.

- Bits 0 “Enc0 Filt bt0” through 3 “Enc0 Filt bt3”, or Bits 16 “Enc1 Filt bt0” through 19 “Enc1 Filt bt3” configure the encoder input filter (see [Table 233A: Encoder Input Filter Settings](#)). The filter requires the input signal to be stable for the specified time period. Input signal transitions within the filter time setting will be ignored. Bits 0-3 and 16-19 add 100ns filtering per stage to encoder inputs.
- Bits 4 “Enc0 4x” and 5 “Enc0 A Phs” or 20 “Enc1 4x” and 21 “Enc1 A Phs” determine how the encoder channel A and B signals will be interpreted. Typically, both encoder phases A and B are used so that direction information is available. [Par 230](#) [EncnDr0 Position] counts up for forward rotation and down for reverse rotation. If bit 5 is set, then the B phase signal is ignored. As a result, the encoder position will only increase, regardless of rotation direction. Bits 4 and 5 together also determine the number of edges counted per encoder pulse (see [Table 233B: Multiplier and Direction Settings](#)). “4x” sampling counts both rise and fall of both A and B encoder phases, hence 4 edges per pulse. In 4x mode, the encoder position will change by four times the encoder pulses per revolution rating (PPR) per encoder revolution (e.g., it increments the value in [Par 230](#) [EncnDr0 Position] by 4096 for one revolution of a 1024 PPR encoder).
- Bit 6 “Enc0 Dir” and 22 “Enc1 Dir” inverts the channel A input, thus reversing the direction of the feedback. Note that changes in encoder direction (bit 6 or 22) may require changing [Par 153](#) [Control Options] bit 10 “Motor Dir”.
- Bit 7 “Enc0 EdgTime” or bit 23 “Enc1 EdgTime” configures the method of sampling used by the Velocity Position Loop (VPL). Setting the bit chooses “Edge to Edge” sampling, while resetting the bit to zero selects “Simple Difference” sampling. “Simple Difference” sampling calculates speed by examining the difference between pulse counts over a fixed sample time. “Edge to Edge” sampling adjusts the sample time to synchronize with the position count updates from the daughter card - improving the accuracy of the speed calculation.
- Bits 10 “En0Smp1Rate bt0” through 12 “En0Smp1Rate bt2” or bits 26 “En1Smp1Rate bt0” through 28 “En1Smp1Rate bt2” configure the Finite Impulse Response (FIR) Filter (see [Table 233C: FIR Filter Settings](#)). This setting reduces the effect of noisy feedback on the system. Refer to the “Speed/Position Feedback” section of the *PowerFlex® 700S with Phase II Control Reference Manual*, publication PELEX-RRM003 for details.

Note: Bit 27 is set to 0 = False by default for firmware version 1.11 and is set to 1 = True by default for firmware version 2.03.

| Options | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|---------|----------|----------|----------|--------------|--------------|--------------|----------|----------|--------------|----------|------------|---------|--------------|--------------|--------------|--------------|----------|----------|----------|--------------|--------------|--------------|----------|----------|--------------|----------|------------|---------|--------------|--------------|--------------|--------------|
| | Reserved | Reserved | Reserved | En1SmplRt b2 | En1SmplRt b1 | En1SmplRt b0 | Reserved | Reserved | Encl EdgTime | Encl Dir | Encl A Phs | Encl 4x | Encl Flit b3 | Encl Flit b2 | Encl Flit b1 | Encl Flit b0 | Reserved | Reserved | Reserved | En0SmplRt b2 | En0SmplRt b1 | En0SmplRt b0 | Reserved | Reserved | Encl EdgTime | Encl Dir | Encl A Phs | Encl 4x | Encl Flit b3 | Encl Flit b2 | Encl Flit b1 | Encl Flit b0 |
| Default | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 1 | 0 | 0 | 1 | 1 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 1 | 1 | 1 | 0 | 0 | 1 | 0 | 0 | 1 | 1 | 0 | 0 |
| Bit | 31 | 30 | 29 | 28 | 27 | 26 | 25 | 24 | 23 | 22 | 21 | 20 | 19 | 18 | 17 | 16 | 15 | 14 | 13 | 12 | 11 | 10 | 9 | 8 | 7 | 6 | 5 | 4 | 3 | 2 | 1 | 0 |

0 = False
1 = True

Table 233A: Encoder Input Filter Settings

| Bit | 3/19 | 2/18 | 1/17 | 0/16 | Encoder Bit Filter Settings |
|-----|------|------|------|------|---------------------------------|
| 0 | 0 | 0 | 0 | 0 | Filter disabled |
| 0 | 0 | 0 | 0 | 1 | 100 ns filter |
| 0 | 0 | 0 | 1 | 0 | 200 ns filter |
| 0 | 0 | 0 | 1 | 1 | 300 ns filter |
| 0 | 1 | 0 | 0 | 0 | 400 ns filter |
| 0 | 1 | 0 | 0 | 1 | 500 ns filter |
| 0 | 1 | 1 | 0 | 0 | 600 ns filter |
| 0 | 1 | 1 | 1 | 1 | 700 ns filter |
| 1 | 0 | 0 | 0 | 0 | 800 ns filter (default setting) |
| 1 | 0 | 0 | 0 | 1 | 900 ns filter |
| 1 | 0 | 0 | 1 | 0 | 1000 ns filter |
| 1 | 0 | 0 | 1 | 1 | 1100 ns filter |
| 1 | 1 | 0 | 0 | 0 | 1200 ns filter |
| 1 | 1 | 0 | 0 | 1 | 1300 ns filter |
| 1 | 1 | 1 | 0 | 0 | 1400 ns filter |
| 1 | 1 | 1 | 1 | 1 | 1500 ns filter |

Table 233B: Multiplier and Direction Settings

| Bit | 5/21 | 4/20 | Mult | Directions | Comments |
|-----|------|------|----------|------------|------------------------------------------------------------------|
| 0 | 0 | 2x | fwd/rev | | Counts rise/fall of phase A, phase B only used to find direction |
| 0 | 1 | 4x | fwd/rev | | Counts rise/fall of both A and B phases (default setting) |
| 1 | 0 | 1x | fwd only | | Counts rise of phase A. Phase B ignored. |
| 1 | 1 | 2X | fwd only | | Counts rise of phase A. Phase B ignored. |

Table 233C: FIR Filter Settings

| Bit | 12/28 | 11/27 | 10/26 | Taps |
|-----|-------|-------|-------|------|
| 0 | 0 | 0 | 1 | |
| 0 | 0 | 1 | 2 | |
| 0 | 1 | 0 | 4 | |
| 0 | 1 | 1 | 8 | |
| 1 | 0 | 0 | 16 | |
| 1 | 0 | 1 | 32 | |
| 1 | 1 | 0 | 64 | |
| 1 | 1 | 1 | 127 | |

| | |
|-----|-----------------|
| 234 | Encdr 0/1 Error |
|-----|-----------------|

Encoder 0/1 Error
Indicates the error status of the encoder 0 and encoder 1.

Note: Bit 4 was changed to "Reserved" for firmware version 2.04.

| Options | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | Enc1 PhseLev | Enc1 PhseLos | Enc1 QuadLos | Enc1 Missing | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | Enc0 PhseLev | Enc0 PhseLos | Enc0 QuadLos | Enc0 Missing |
|---------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|--------------|--------------|--------------|--------------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|--------------|--------------|--------------|--------------|
| Default | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| Bit | 31 | 30 | 29 | 28 | 27 | 26 | 25 | 24 | 23 | 22 | 21 | 20 | 19 | 18 | 17 | 16 | 15 | 14 | 13 | 12 | 11 | 10 | 9 | 8 | 7 | 6 | 5 | 4 | 3 | 2 | 1 | 0 |

0 = False
1 = True

| No. | Name Description | Values | | | Linkable | Read-Write | Data Type |
|-----|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------|--|--|----------|------------|----------------|
| 235 | RegisLtch0 Value Displays the registration data of port 0. Indicates the position reference counter value latched by the external strobes. The strobe signal used to trigger the latch is configurable by Par 236 [RegisLtch 0/1 Cnfg]. | Default: 0 Min/Max: -/+2147483648 | | | | RW | 32-bit Integer |
| 236 | RegisLtch 0/1Cnfg Configures the registration latch at port 0 or port 1 to be used with Encoder 0 or Encoder 1, respectively. <ul style="list-style-type: none">• Bit 0 “RL0 Encoder 1” selects the encoder for the input source of latched data. Setting bit 0 selects encoder 1, resetting the bit to zero selects encoder 0.• Bits 1 “RL0 TrgSrc0” and 2 “RL0 TrgSrc1” select the trigger source (see Table 236A: Encoder0 Trigger Source Settings).• Bits 3 “RL0 TrgEdge0”, 4 “RL0 TrgEdge1”, 19 “RL1 TrgEdge0” and 20 “RL1 TrgEdge1” select which edges signal the position (see Table 236C: Edge Selection Settings).• Bits 5 “RL0 Dir Rev”, 6 “RL0 Dir Fwd”, 21 “RL1 Dir Rev” and 22 “RL1 Dir Fwd” set the direction of position capture (see Table 236D: Trigger Direction Settings).• Bits 8 “SL DI Filt 0”, 9 “SL DI Filt 1”, 10 “SL DI Filt 2”, and 11 “SL DI Filt 3” configure a filter for the digital input 1 and 2 (see Table 236E: Filter Settings). The filter requires the input signal to be stable for the specified time period. Input transitions within the filter time setting will be ignored. Bits 8-11 add 100ns filter per stage to external trigger.• 17 “RL1 TrgSrc0” and 18 “RL1 TrgSrc1” select the trigger source (see Table 236B: Encoder1 Trigger Source Settings).• Bit 0 & 16 - off = Enc0 input to latch, on = Enc1 input to latch. | | | | | | |

| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|---------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|-------------|-------------|--------------|--------------|-------------|-------------|--------------|----------|----------|----------|----------|--------------|--------------|--------------|--------------|----------|-------------|-------------|--------------|--------------|-------------|-------------|--------------|-----------------------|
| Options | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | RL1 Dir Fwd | RL1 Dir Rev | RL1 TrgEdge1 | RL1 TrgEdge0 | RL1 TrgSrc1 | RL1 TrgSrc0 | RL1 Encoder1 | Reserved | Reserved | Reserved | Reserved | SL DI Filt 3 | SL DI Filt 2 | SL DI Filt 1 | SL DI Filt 0 | Reserved | RL0 Dir Fwd | RL0 Dir Rev | RL0 TrgEdge1 | RL0 TrgEdge0 | RL0 TrgSrc1 | RL0 TrgSrc0 | RL0 Encoder1 | |
| Default | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 1 | 1 | 0 = False 1 = True |
| Bit | 31 | 30 | 29 | 28 | 27 | 26 | 25 | 24 | 23 | 22 | 21 | 20 | 19 | 18 | 17 | 16 | 15 | 14 | 13 | 12 | 11 | 10 | 9 | 8 | 7 | 6 | 5 | 4 | 3 | 2 | 1 | 0 | | |

Table 236A: Encoder0 Trigger Source Settings

| | | | |
|-----|---|---|-------------------------------------|
| Bit | 2 | 1 | |
| 0 | 0 | | Encoder 0 Z-pulse AND Ext Trig A |
| 0 | 1 | | Ext Trig B (Digital Input 2) |
| 1 | 0 | | Ext Trig A (Digital Input 1) |
| 1 | 1 | | Encoder 0 (Primary Encoder) Z-pulse |

Table 236D: Trigger Direction Settings

| | | | |
|-----|------|------|-----------------|
| Bit | 6/22 | 5/21 | |
| 0 | 0 | | Not Configured |
| 0 | 1 | | Reverse |
| 1 | 0 | | Forward |
| 1 | 1 | | Both Directions |

Note: When the Z-pulse is selected as a trigger source, registration latch port 0 is used for Encoder0 regardless of the setting of bit 0 “RL0 Encoder1”.

Table 236B: Encoder1 Trigger Source Settings

| | | | |
|-----|----|----|---------------------------------------|
| Bit | 18 | 17 | |
| 0 | 0 | | Encoder 1 Z-pulse AND Ext Trig A |
| 0 | 1 | | Ext Trig B (Digital Input 2) |
| 1 | 0 | | Ext Trig A (Digital Input 1) |
| 1 | 1 | | Encoder 1 (Secondary Encoder) Z-pulse |

Table 236E: Filter Settings

| | | | | | |
|-----|----|----|---|---|---------------------------------|
| Bit | 11 | 10 | 9 | 8 | Input Filter Setting |
| 0 | 0 | 0 | 0 | | Filter disabled |
| 0 | 0 | 0 | 1 | | 100 ns filter |
| 0 | 0 | 1 | 0 | | 200 ns filter |
| 0 | 0 | 1 | 1 | | 300 ns filter |
| 0 | 1 | 0 | 0 | | 400 ns filter |
| 0 | 1 | 0 | 1 | | 500 ns filter |
| 0 | 1 | 1 | 0 | | 600 ns filter |
| 0 | 1 | 1 | 1 | | 700 ns filter |
| 1 | 0 | 0 | 0 | | 800 ns filter (default setting) |
| 1 | 0 | 0 | 1 | | 900 ns filter |
| 1 | 0 | 1 | 0 | | 1000 ns filter |
| 1 | 0 | 1 | 1 | | 1100 ns filter |
| 1 | 1 | 0 | 0 | | 1200 ns filter |
| 1 | 1 | 0 | 1 | | 1300 ns filter |
| 1 | 1 | 1 | 0 | | 1400 ns filter |
| 1 | 1 | 1 | 1 | | 1500 ns filter |

Note: When the Z-pulse is selected as a trigger source, registration latch port 1 is used for Encoder1 regardless of the setting of bit 16 “RL1 Encoder1”.

Table 236C: Edge Selection Settings

| | | | |
|-----|------|------|-------------------------|
| Bit | 4/20 | 3/19 | |
| 0 | 0 | | Capture on rising edge |
| 0 | 1 | | Capture on falling edge |
| 1 | 0 | | Capture on both edges |
| 1 | 1 | | Disable capture |

| No. | Name Description | Values | | | Linkable | Read-Write | Data Type | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|---------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------|-------------|------------|-------------------|---------|---------|---------|---|---|-----|----|-----|-----|-----|---------------|------|---|---|--|-------------|-----|-------------------|-----|------|------|---|---|--|-----|-----|-----|------------------|------|------|---|---|--|-----|------|------|------|------|------|---|----|--|------|------|------|------|-------|-------|---|----|--|------|------|------|-------|-------|----|---|----|----|----|----|----|----|----|----|---|-----|----|----|----|----|----|----|----|---|-----|----|----|----|----|----|----|----|---|-----|----|----|----|----|----|----|----|----|------|----|----|----|----|----|----|----|----|------|----|----|----|----|----|----|----|----|------|----|----|----|----|----|----|----|----|------|----|----|----|----|----|----|----|----|-------|----|----|----|----|----|----|----|--------------------------------|-------------------------|--|--|----|-------------------|
| 242 | Encoder1 PPR Sets the pulse per revolution rating of the feedback device connected to the Encoder 1 input. This parameter must be set to one of the values displayed in bold in Table 242A below. Table 242A: PPR Rating Values <table><tr><th>n =</th><th>2ⁿ =</th><th>x</th><th>mod 75</th><th>mod 125</th><th>mod 225</th><th>mod 375</th><th>mod 625</th><th>mod1125</th></tr><tr><td>0</td><td>1</td><td></td><td>75</td><td>125</td><td>225</td><td>375</td><td>625</td><td>1125</td></tr><tr><td>1</td><td>2</td><td></td><td>150</td><td>250</td><td>450</td><td>750</td><td>1250</td><td>2250</td></tr><tr><td>2</td><td>4</td><td></td><td>300</td><td>500</td><td>900</td><td>1500</td><td>2500</td><td>4500</td></tr><tr><td>3</td><td>8</td><td></td><td>600</td><td>1000</td><td>1800</td><td>3000</td><td>5000</td><td>9000</td></tr><tr><td>4</td><td>16</td><td></td><td>1200</td><td>2000</td><td>3600</td><td>6000</td><td>10000</td><td>18000</td></tr><tr><td>5</td><td>32</td><td></td><td>2400</td><td>4000</td><td>7200</td><td>12000</td><td>20000</td><td>--</td></tr><tr><td>6</td><td>64</td><td>--</td><td>--</td><td>--</td><td>--</td><td>--</td><td>--</td><td>--</td></tr><tr><td>7</td><td>128</td><td>--</td><td>--</td><td>--</td><td>--</td><td>--</td><td>--</td><td>--</td></tr><tr><td>8</td><td>256</td><td>--</td><td>--</td><td>--</td><td>--</td><td>--</td><td>--</td><td>--</td></tr><tr><td>9</td><td>512</td><td>--</td><td>--</td><td>--</td><td>--</td><td>--</td><td>--</td><td>--</td></tr><tr><td>10</td><td>1024</td><td>--</td><td>--</td><td>--</td><td>--</td><td>--</td><td>--</td><td>--</td></tr><tr><td>11</td><td>2048</td><td>--</td><td>--</td><td>--</td><td>--</td><td>--</td><td>--</td><td>--</td></tr><tr><td>12</td><td>4096</td><td>--</td><td>--</td><td>--</td><td>--</td><td>--</td><td>--</td><td>--</td></tr><tr><td>13</td><td>8192</td><td>--</td><td>--</td><td>--</td><td>--</td><td>--</td><td>--</td><td>--</td></tr><tr><td>14</td><td>16384</td><td>--</td><td>--</td><td>--</td><td>--</td><td>--</td><td>--</td><td>--</td></tr></table> | n = | 2 ⁿ = | x | mod 75 | mod 125 | mod 225 | mod 375 | mod 625 | mod1125 | 0 | 1 | | 75 | 125 | 225 | 375 | 625 | 1125 | 1 | 2 | | 150 | 250 | 450 | 750 | 1250 | 2250 | 2 | 4 | | 300 | 500 | 900 | 1500 | 2500 | 4500 | 3 | 8 | | 600 | 1000 | 1800 | 3000 | 5000 | 9000 | 4 | 16 | | 1200 | 2000 | 3600 | 6000 | 10000 | 18000 | 5 | 32 | | 2400 | 4000 | 7200 | 12000 | 20000 | -- | 6 | 64 | -- | -- | -- | -- | -- | -- | -- | 7 | 128 | -- | -- | -- | -- | -- | -- | -- | 8 | 256 | -- | -- | -- | -- | -- | -- | -- | 9 | 512 | -- | -- | -- | -- | -- | -- | -- | 10 | 1024 | -- | -- | -- | -- | -- | -- | -- | 11 | 2048 | -- | -- | -- | -- | -- | -- | -- | 12 | 4096 | -- | -- | -- | -- | -- | -- | -- | 13 | 8192 | -- | -- | -- | -- | -- | -- | -- | 14 | 16384 | -- | -- | -- | -- | -- | -- | -- | Units: Default: Min/Max: | PPR 1024 10/20000 | | | RW | 16-bit Integer |
| n = | 2 ⁿ = | x | mod 75 | mod 125 | mod 225 | mod 375 | mod 625 | mod1125 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 0 | 1 | | 75 | 125 | 225 | 375 | 625 | 1125 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1 | 2 | | 150 | 250 | 450 | 750 | 1250 | 2250 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 2 | 4 | | 300 | 500 | 900 | 1500 | 2500 | 4500 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 3 | 8 | | 600 | 1000 | 1800 | 3000 | 5000 | 9000 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 4 | 16 | | 1200 | 2000 | 3600 | 6000 | 10000 | 18000 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 5 | 32 | | 2400 | 4000 | 7200 | 12000 | 20000 | -- | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 6 | 64 | -- | -- | -- | -- | -- | -- | -- | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 7 | 128 | -- | -- | -- | -- | -- | -- | -- | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 8 | 256 | -- | -- | -- | -- | -- | -- | -- | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 9 | 512 | -- | -- | -- | -- | -- | -- | -- | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 10 | 1024 | -- | -- | -- | -- | -- | -- | -- | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 11 | 2048 | -- | -- | -- | -- | -- | -- | -- | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 12 | 4096 | -- | -- | -- | -- | -- | -- | -- | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 13 | 8192 | -- | -- | -- | -- | -- | -- | -- | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 14 | 16384 | -- | -- | -- | -- | -- | -- | -- | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 245 | Spd Fdbk TP Sel Enter or write a value to select the data displayed in Par 246 [Spd Fdbk TP RPM] and Par 247 [Spd Fdbk TP Data]. Note: Option values 5 - 15 were changed to "Reserved" and option 41 "First Diff" was added for firmware version 2.04. | Default: Options: | 0 = "Zero" 0 = "Zero" 1 = "Clock Time" 2 = "InactvFbkDev" 3 = "ActiveFbkDev" 4 = "MCP Fdbk Dev" 5 = "Reserved" 6 = "Reserved" 7 = "Reserved" 8 = "Reserved" 9 = "Reserved" 10 = "Reserved" 11 = "Reserved" 12 = "Reserved" 13 = "Reserved" 14 = "Reserved" 15 = "Reserved" 16 = "MCP PPR" 17 = "MCP 2^n" 18 = "E0 Edge Time" 19 = "E0 dEdge" 20 = "E0 dTime" 21 = "E0 EPR" 22 = "E0 Edge Mode" 23 = "E0 nMax" 24 = "E0 Error" 25 = "E0 Qloss pk" 26 = "E0 Ploss pk" 27 = "E0 PlevlHist" 28 = "E1 Edge Time" 29 = "E1 dEdge" 30 = "E1 dTime" 31 = "E1 EPR" 32 = "E1 Edge Mode" 33 = "E1 nMax" 34 = "E1 Error" 35 = "E1 Qloss pk" 36 = "E1 Ploss pk" 37 = "E1 PlevlHist" 38 = "E0 Delta2Err" 39 = "E1 Delta2Err" 40 = "EOB Present" 41 = "First Diff" | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 246 | Spd Fdbk TP RPM Displays the value selected in Par 245 [Spd Fdbk TP Sel] in RPM. This display should only be used if the selected value is floating point data. | Units: Default: Min/Max: Scale: | RPM 0.0 -/+8.0 pu Par 4 [Motor NP RPM] = 1.0pu | | | RO | Real | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 247 | Spd Fdbk TP Data Displays the value selected in Par 245 [Spd Fdbk TP Sel]. This display should only be used if the selected value is integer data. | Default: Min/Max: | 0 -/+32768 | | | RO | 16-bit Integer | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 249 | Fdbk Option ID Displays information about the Feedback Option. <ul style="list-style-type: none">• Bits 15-11 indicate Module ID Number.• Bits 10-6 indicate Version Number.• Bits 5-3 indicate Revision Number High.• Bits 2-0 indicate Revision Number Low. Hexadecimal 1000 indicates resolver, hexadecimal 2000 indicates old high-resolution board, and hexadecimal 2040 indicates new high-resolution board. | Options: | <table><tr><td>N</td><td>N</td><td>NNN</td><td>N</td><td>N</td><td>NNN</td><td>N</td><td>NNN</td><td>N</td><td>NNN</td></tr><tr><td colspan="5">Module ID No.</td><td colspan="2">Version No.</td><td colspan="3">Revision No. High</td></tr><tr><td colspan="5"></td><td colspan="2"></td><td colspan="3">Revision No. Low</td></tr></table> | | | | | N | N | NNN | N | N | NNN | N | NNN | N | NNN | Module ID No. | | | | | Version No. | | Revision No. High | | | | | | | | | | Revision No. Low | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| N | N | NNN | N | N | NNN | N | NNN | N | NNN | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Module ID No. | | | | | Version No. | | Revision No. High | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | Revision No. Low | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 250 | FB Opt0 Posit Displays the position feedback (accumulator) from the feedback option card port 0. | Default: Min/Max: | 0 -/+2147483648 | | | RO | 32-bit Integer | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

| No. | Name Description | Values | | | Linkable | Read-Write | Data Type | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
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| 251 | FB Opt0 Spd Fdbk Displays the speed feedback from the feedback option card port 0. | Units: RPM Default: 0.0000 Min/Max: +/-14000.0000 Scale: Par 4 [Motor NP RPM] = 1.0pu | | | RO | | Real | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 252 | FB Opt1 Posit Displays position feedback (accumulator) from port 1 of the feedback option card. | Default: 0 Min/Max: 0/2147483648 | | | RO | | 32-bit Integer | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 253 | FB Opt1 Spd Fdbk Displays speed feedback from port 1 of the feedback option card. | Units: RPM Default: 0.0 Min/Max: +/-8.0 pu | | | RO | | Real | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 254 | Opt0/1 RegisCnfg Configures the registration latch for port 0 of the feedback option card. <ul style="list-style-type: none">Bits 3 “O0 RLTrgEdg0”, 4 “O0 RLTrgEdg1”, 19 “O1 RLTrgEdg0” and 20 “O1 RLTrgEdg1” select which trigger edges signal the position (see Table 254A: Edge Selection Settings).Bits 5 “O0 RL DirRev”, 6 “O0 RL DirFwd”, 21 “O1 RL DirRev” and 22 “O1 RL DirFwd” set the direction of position capture (see Table 254B: Direction Settings).Bits 8-11 configure a digital filter for the registration trigger signal. This filter can be used to reject spurious noise. The filter works by waiting a programmed time before deciding that the signal is valid. This waiting imposes a mandatory delay in the registration signal. The filter delay is programmable in increments of 100 nanoseconds from 0 (or no delay) up to 700 nanoseconds. <table><tr><td>Options</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>O1 RL DirFwd</td><td>O1 RL DirRev</td><td>O1 RLTrgEdg1</td><td>O1 RLTrgEdg0</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>RL Flt bit3</td><td>RL Flt bit2</td><td>RL Flt bit1</td><td>RL Flt bit0</td><td>Reserved</td><td>O0 RL DirFwd</td><td>O0 RL DirRev</td><td>O0 RLTrgEdg1</td><td>O0 RLTrgEdg0</td><td>Reserved</td><td>Reserved</td><td>Reserved</td></tr><tr><td>Default</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>1</td><td>0</td><td>0</td><td>0</td><td>0</td><td>1</td><td>1</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td></tr><tr><td>Bit</td><td>31</td><td>30</td><td>29</td><td>28</td><td>27</td><td>26</td><td>25</td><td>24</td><td>23</td><td>22</td><td>21</td><td>20</td><td>19</td><td>18</td><td>17</td><td>16</td><td>15</td><td>14</td><td>13</td><td>12</td><td>11</td><td>10</td><td>9</td><td>8</td><td>7</td><td>6</td><td>5</td><td>4</td><td>3</td><td>2</td><td>1</td><td>0</td></tr></table> <div>0 = False 1 = True</div> <div><div>Table 254A: Edge Selection Settings<table><tr><td>Bit</td><td>4/20</td><td>3/19</td></tr><tr><td>0</td><td>0</td><td>Capture on rising edge</td></tr><tr><td>0</td><td>1</td><td>Capture on falling edge</td></tr><tr><td>1</td><td>0</td><td>Capture on both edges</td></tr><tr><td>1</td><td>1</td><td>Disable capture</td></tr></table></div><div>Table 254B: Direction Settings<table><tr><td>Bit</td><td>6/22</td><td>5/21</td></tr><tr><td>0</td><td>0</td><td>Disable capture</td></tr><tr><td>0</td><td>1</td><td>Capture position during Reverse rotation</td></tr><tr><td>1</td><td>0</td><td>Capture position during Forward rotation</td></tr><tr><td>1</td><td>1</td><td>Capture position during either rotation</td></tr></table></div></div> | | | | | | | Options | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | O1 RL DirFwd | O1 RL DirRev | O1 RLTrgEdg1 | O1 RLTrgEdg0 | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | RL Flt bit3 | RL Flt bit2 | RL Flt bit1 | RL Flt bit0 | Reserved | O0 RL DirFwd | O0 RL DirRev | O0 RLTrgEdg1 | O0 RLTrgEdg0 | Reserved | Reserved | Reserved | Default | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | Bit | 31 | 30 | 29 | 28 | 27 | 26 | 25 | 24 | 23 | 22 | 21 | 20 | 19 | 18 | 17 | 16 | 15 | 14 | 13 | 12 | 11 | 10 | 9 | 8 | 7 | 6 | 5 | 4 | 3 | 2 | 1 | 0 | Bit | 4/20 | 3/19 | 0 | 0 | Capture on rising edge | 0 | 1 | Capture on falling edge | 1 | 0 | Capture on both edges | 1 | 1 | Disable capture | Bit | 6/22 | 5/21 | 0 | 0 | Disable capture | 0 | 1 | Capture position during Reverse rotation | 1 | 0 | Capture position during Forward rotation | 1 | 1 | Capture position during either rotation |
| Options | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | O1 RL DirFwd | O1 RL DirRev | O1 RLTrgEdg1 | O1 RLTrgEdg0 | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | RL Flt bit3 | RL Flt bit2 | RL Flt bit1 | RL Flt bit0 | Reserved | O0 RL DirFwd | O0 RL DirRev | O0 RLTrgEdg1 | O0 RLTrgEdg0 | Reserved | Reserved | Reserved | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Default | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Bit | 31 | 30 | 29 | 28 | 27 | 26 | 25 | 24 | 23 | 22 | 21 | 20 | 19 | 18 | 17 | 16 | 15 | 14 | 13 | 12 | 11 | 10 | 9 | 8 | 7 | 6 | 5 | 4 | 3 | 2 | 1 | 0 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Bit | 4/20 | 3/19 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 0 | 0 | Capture on rising edge | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 0 | 1 | Capture on falling edge | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1 | 0 | Capture on both edges | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1 | 1 | Disable capture | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Bit | 6/22 | 5/21 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 0 | 0 | Disable capture | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 0 | 1 | Capture position during Reverse rotation | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1 | 0 | Capture position during Forward rotation | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1 | 1 | Capture position during either rotation | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 255 | Opt0/1 RegisCtrl Configures the registration control on port 0 of the feedback option card. <ul style="list-style-type: none">Set bits 0 “O0 Arm Req” and 16 “O1 Arm Req” to arm the registration logic for the next trigger event. The particular latch will be armed and ready to be strobed on the next occurrence of the trigger input.Set bits 1 “O0 DisarmReq” and 17 “O1 DisarmReq” to disarm the registration logic for next trigger event. After the registration is captured, bit 0 “O0 Arm Req” and bit 16 “O1 Arm Req” automatically resets back to 0 after found. Bit 1 “O0 DisarmReq” and bit 17 “O1 DisarmReq” are only needed to disarm a registration latch that has not been found yet. Setting bits 1 and 17 will clear the bits 0 and 6. Setting bits 0 and 6 sets bits 0 “Opt0 Armed” and bit 16 “Opt1 Armed” and clears bits 1 “Opt0 Found” and bit 17 “Opt1 Found” of parameter 256 [Opt0/1 RegisStat]. <table><tr><td>Options</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>O1 DisarmReq</td><td>O1 Arm Req</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>O0 DisarmReq</td><td>O0 Arm Req</td></tr><tr><td>Default</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td></tr><tr><td>Bit</td><td>31</td><td>30</td><td>29</td><td>28</td><td>27</td><td>26</td><td>25</td><td>24</td><td>23</td><td>22</td><td>21</td><td>20</td><td>19</td><td>18</td><td>17</td><td>16</td><td>15</td><td>14</td><td>13</td><td>12</td><td>11</td><td>10</td><td>9</td><td>8</td><td>7</td><td>6</td><td>5</td><td>4</td><td>3</td><td>2</td><td>1</td><td>0</td></tr></table> <div>0 = False 1 = True</div> | | | | | | | Options | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | O1 DisarmReq | O1 Arm Req | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | O0 DisarmReq | O0 Arm Req | Default | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | Bit | 31 | 30 | 29 | 28 | 27 | 26 | 25 | 24 | 23 | 22 | 21 | 20 | 19 | 18 | 17 | 16 | 15 | 14 | 13 | 12 | 11 | 10 | 9 | 8 | 7 | 6 | 5 | 4 | 3 | 2 | 1 | 0 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Options | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | O1 DisarmReq | O1 Arm Req | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | O0 DisarmReq | O0 Arm Req | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Default | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Bit | 31 | 30 | 29 | 28 | 27 | 26 | 25 | 24 | 23 | 22 | 21 | 20 | 19 | 18 | 17 | 16 | 15 | 14 | 13 | 12 | 11 | 10 | 9 | 8 | 7 | 6 | 5 | 4 | 3 | 2 | 1 | 0 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 256 | Opt0/1 RegisStat Indicates the registration control status on port 0 of the feedback option card. <ul style="list-style-type: none">Bit 0 “Opt0 Armed” indicates the registration latch is armed.Bit 1 “Opt0 Found” indicates the registration event has triggered the latch.Rising edge of 'Arm request' will set the 'Armed' status bit.Rising edge of 'Disarm request' will clear the 'Armed' status bit. <table><tr><td>Options</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Opt1 Found</td><td>Opt1 Armed</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Opt0 Found</td><td>Opt0 Armed</td></tr><tr><td>Default</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td></tr><tr><td>Bit</td><td>31</td><td>30</td><td>29</td><td>28</td><td>27</td><td>26</td><td>25</td><td>24</td><td>23</td><td>22</td><td>21</td><td>20</td><td>19</td><td>18</td><td>17</td><td>16</td><td>15</td><td>14</td><td>13</td><td>12</td><td>11</td><td>10</td><td>9</td><td>8</td><td>7</td><td>6</td><td>5</td><td>4</td><td>3</td><td>2</td><td>1</td><td>0</td></tr></table> <div>0 = False 1 = True</div> | | | | | | | Options | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | Opt1 Found | Opt1 Armed | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | Opt0 Found | Opt0 Armed | Default | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | Bit | 31 | 30 | 29 | 28 | 27 | 26 | 25 | 24 | 23 | 22 | 21 | 20 | 19 | 18 | 17 | 16 | 15 | 14 | 13 | 12 | 11 | 10 | 9 | 8 | 7 | 6 | 5 | 4 | 3 | 2 | 1 | 0 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Options | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | Opt1 Found | Opt1 Armed | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | Opt0 Found | Opt0 Armed | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Default | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Bit | 31 | 30 | 29 | 28 | 27 | 26 | 25 | 24 | 23 | 22 | 21 | 20 | 19 | 18 | 17 | 16 | 15 | 14 | 13 | 12 | 11 | 10 | 9 | 8 | 7 | 6 | 5 | 4 | 3 | 2 | 1 | 0 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

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| No. | Name Description | Values | | | Linkable | Read-Write | Data Type | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
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| 264 | Heidenhain0 Stat Indicates fault and alarm statuses on the Heidenhain encoder feedback option card and Endat communication. <ul style="list-style-type: none">Bit 0 "VM Enc Out" when set, indicates that the encoder output from the Heidenhain option card is the virtual encoder position determined by Par 1155 [Heidn VM Pos Ref].Bit 1 "Emul Enc Out" when set, indicates that the encoder output from the Heidenhain option card is the emulated encoder position determined by the connected Heidenhain encoder.Bit 5 "Sig Amplitud" indicates that the signal amplitude is insufficient or too large.Bit 6 "Quadrature Er" indicates that there is a signal quadrature error.Bit 7 "Open Wire" indicates an open wire fault.Bit 8 "VoltageLvlEr" indicates that the operating voltage is too high or too low.Bit 9 "PowerSup Er" indicates the failure of the power supply.Bit 10 "PowerUpDiag Er" indicates the option board failed its power-up diagnostic test.The pattern on the FPGA must be identical to the pattern written from the DSP, or the board status test will fail.Bit 11 "MsgChecksum Er" indicates a message checksum fault.The check sum associated with the Endat communication device must be correct and acknowledged by the feedback option card.Bit 12 "Time Out Err" indicates an Endat time-out fault.Bit 13 "PPR Error" indicates an encoder PPR setting mismatch fault.Bit 14 "Bootup Error" indicates an Endat boot-up fault.Bit 15 "FW VersionEr" indicates that the firmware version of the encoder does not match the firmware version of the Heidenhain option card in the drive.Bit 16 "LightSrc Er" indicates an Endat light source fault.Bit 17 "Sig Amplitud" indicates an Endat signal amplitude fault.Bit 18 "PstvValue Er" indicates an Endat positive value fault.Bit 19 "Over Voltage" indicates an Endat over voltage fault.Bit 20 "Undr Voltage" indicates an Endat under voltage fault.Bit 21 "Over Current" indicates an Endat over current fault.Bit 24 "FrqExced Alm" indicates an Endat frequency exceeded alarm.Bit 25 "Temprtr Alm" indicates an Endat temperature exceeded alarm.Bit 26 "LghtCtrl Alm" indicates an Endat limit of light control alarm.Bit 28 "RefPoint Alm" indicates an Endat reference point alarm. Notes: This parameter was added for firmware version 2.03. Bit 14 was changed from "Endat BootEr" to "Bootup Error" and bit 15 "FW VersionErr" is new for firmware version 3.01. Bits 0 and 1 were added for firmware version 4.001. | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <table><tr><th>Options</th><th>Reserved</th><th>Reserved</th><th>Reserved</th><th>RefPoint Alm</th><th>Reserved</th><th>LghtCtrl Alm</th><th>Temprtr Alm</th><th>FrqExced Alm</th><th>Reserved</th><th>Reserved</th><th>Over Current</th><th>Undr Voltage</th><th>Over Voltage</th><th>PstvValue Er</th><th>Sig Amplitud</th><th>LightSrc Er</th><th>FW VersionEr</th><th>Bootup Error</th><th>PPR Error</th><th>Time Out Err</th><th>MsgChecksum Er</th><th>PowerUpDiag Er</th><th>PowerSup Er</th><th>VoltageLvlEr</th><th>Open Wire</th><th>Quadrature Er</th><th>Sig Amplitud</th><th>Reserved</th><th>Reserved</th><th>Reserved</th><th>Emul Enc Out</th><th>VM Enc Out</th></tr><tr><td>Default</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td></tr><tr><td>Bit</td><td>31</td><td>30</td><td>29</td><td>28</td><td>27</td><td>26</td><td>25</td><td>24</td><td>23</td><td>22</td><td>21</td><td>20</td><td>19</td><td>18</td><td>17</td><td>16</td><td>15</td><td>14</td><td>13</td><td>12</td><td>11</td><td>10</td><td>9</td><td>8</td><td>7</td><td>6</td><td>5</td><td>4</td><td>3</td><td>2</td><td>1</td><td>0</td></tr></table> <div>0 = False 1 = True</div> | | | | | | | | Options | Reserved | Reserved | Reserved | RefPoint Alm | Reserved | LghtCtrl Alm | Temprtr Alm | FrqExced Alm | Reserved | Reserved | Over Current | Undr Voltage | Over Voltage | PstvValue Er | Sig Amplitud | LightSrc Er | FW VersionEr | Bootup Error | PPR Error | Time Out Err | MsgChecksum Er | PowerUpDiag Er | PowerSup Er | VoltageLvlEr | Open Wire | Quadrature Er | Sig Amplitud | Reserved | Reserved | Reserved | Emul Enc Out | VM Enc Out | Default | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | Bit | 31 | 30 | 29 | 28 | 27 | 26 | 25 | 24 | 23 | 22 | 21 | 20 | 19 | 18 | 17 | 16 | 15 | 14 | 13 | 12 | 11 | 10 | 9 | 8 | 7 | 6 | 5 | 4 | 3 | 2 | 1 | 0 |
| Options | Reserved | Reserved | Reserved | RefPoint Alm | Reserved | LghtCtrl Alm | Temprtr Alm | FrqExced Alm | Reserved | Reserved | Over Current | Undr Voltage | Over Voltage | PstvValue Er | Sig Amplitud | LightSrc Er | FW VersionEr | Bootup Error | PPR Error | Time Out Err | MsgChecksum Er | PowerUpDiag Er | PowerSup Er | VoltageLvlEr | Open Wire | Quadrature Er | Sig Amplitud | Reserved | Reserved | Reserved | Emul Enc Out | VM Enc Out | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Default | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Bit | 31 | 30 | 29 | 28 | 27 | 26 | 25 | 24 | 23 | 22 | 21 | 20 | 19 | 18 | 17 | 16 | 15 | 14 | 13 | 12 | 11 | 10 | 9 | 8 | 7 | 6 | 5 | 4 | 3 | 2 | 1 | 0 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 265 | Heidn Mkr Offset Configures marker offset values for the Heidenhain Encoder Feedback Option. The marker offset is specified within one revolution. Note: This parameter was added for firmware version 2.03. | Default: 0.0000 Min/Max: 0.0000/4294967295 | | | ✓ | RW | 32-bit Integer | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 266 | Heidn Encdr Type Configures the encoder type manually if the Endat type is not used. Bit 1 "Not EnDat" when this bit is set it indicates that an Endat type encoder is not used. Bit 2 "Multi Turn" when this bit is set it indicates that a multi-turn type encoder is used. Bit 5 "Endat24bitSI" when this bit is on, the Heidenhain encoder works as Endat / Single turn / 24 bits. When this bit is off, the Heidenhain encoder works as Endat / Single turn / 20 bits. Bit 6 "VrtlMasterEn" when set, indicates that the Virtual Master encoder function of the Heidenhain option card is active. The Virtual Master function is available with v3.00 or later of the Heidenhain option card. Notes: This parameter was added for firmware version 2.03. Bit 1 "Not Endat" was changed to "0" (false) and bit 2 "Multi Turn" was changed to "1" (true) for firmware version 2.04. Bit 1 "Not Endat" was changed to "1" (true), bit 2 "Multi Turn" was changed to "0" (False), and bit 6 "Endat24bitSI" was added for firmware version 3.01. Added bit 6 for firmware version 4.001. | | | | ✓ | RW | 16-bit Integer | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <table><tr><th>Options</th><th>Reserved</th><th>Reserved</th><th>Reserved</th><th>Reserved</th><th>Reserved</th><th>Reserved</th><th>Reserved</th><th>Reserved</th><th>VrtlMasterEn</th><th>Endat24bitSI</th><th>Reserved</th><th>Reserved</th><th>Multi Turn</th><th>Not EnDat</th><th>Reserved</th></tr><tr><td>Default</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>1</td><td>0</td></tr><tr><td>Bit</td><td>15</td><td>14</td><td>13</td><td>12</td><td>11</td><td>10</td><td>9</td><td>8</td><td>7</td><td>6</td><td>5</td><td>4</td><td>3</td><td>2</td><td>1</td><td>0</td></tr></table> <div>0 = False 1 = True</div> | | | | | | | | Options | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | VrtlMasterEn | Endat24bitSI | Reserved | Reserved | Multi Turn | Not EnDat | Reserved | Default | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | Bit | 15 | 14 | 13 | 12 | 11 | 10 | 9 | 8 | 7 | 6 | 5 | 4 | 3 | 2 | 1 | 0 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Options | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | VrtlMasterEn | Endat24bitSI | Reserved | Reserved | Multi Turn | Not EnDat | Reserved | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Default | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Bit | 15 | 14 | 13 | 12 | 11 | 10 | 9 | 8 | 7 | 6 | 5 | 4 | 3 | 2 | 1 | 0 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 267 | Heidn Encdr PPR Configures the encoder PPR for the Heidenhain Encoder Feedback Option. Note: This parameter was added for firmware version 2.03. Changed the minimum value from "10" to "1" for firmware version 4.001. | Units: PPR Default: 2048 Min/Max: 1/100000 | | | | RW | 32-bit Integer | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

[illegible]

| No. | Name Description | Values | | | | Linkable | Read-Write | Data Type | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
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| 269 | Resolver0 Status Indicates status of the resolver option card port 0. <ul style="list-style-type: none">• Bit 0 “-Cable Tune”• Bit 1 “-Tune Result” indicates the tuning Parameter type. When set, it indicates the tuning is using the parameter database. When cleared, it indicates the tuning is using derived data.• Bit 2 “-Mtr Turning” indicates that the motor is turning.• Bit 4 “Energized” indicates the resolver is energized.• Bit 8 “Open Wire” indicates a problem with the cable (open circuit).• Bit 9 “Power Supply” indicates problem with the option card's power supply.• Bit 10 “Diag Fail” indicates the option card has failed its power-up diagnostics. <table><tr><td>Options</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Select OK</td><td>Diag Fail</td><td>Power Supply</td><td>Open Wire</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Energized</td><td>-Cable Comp</td><td>-Mtr Turning</td><td>-Tune Result</td><td>-Cable Tune</td></tr><tr><td>Default</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td></tr><tr><td>Bit</td><td>15</td><td>14</td><td>13</td><td>12</td><td>11</td><td>10</td><td>9</td><td>8</td><td>7</td><td>6</td><td>5</td><td>4</td><td>3</td><td>2</td><td>1</td><td>0</td></tr></table> <div>0 = False 1 = True</div> | Options | Reserved | Reserved | Reserved | Reserved | Select OK | Diag Fail | Power Supply | Open Wire | Reserved | Reserved | Reserved | Energized | -Cable Comp | -Mtr Turning | -Tune Result | -Cable Tune | Default | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | Bit | 15 | 14 | 13 | 12 | 11 | 10 | 9 | 8 | 7 | 6 | 5 | 4 | 3 | 2 | 1 | 0 | | | | | | |
| Options | Reserved | Reserved | Reserved | Reserved | Select OK | Diag Fail | Power Supply | Open Wire | Reserved | Reserved | Reserved | Energized | -Cable Comp | -Mtr Turning | -Tune Result | -Cable Tune | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Default | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Bit | 15 | 14 | 13 | 12 | 11 | 10 | 9 | 8 | 7 | 6 | 5 | 4 | 3 | 2 | 1 | 0 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 270 | Reslvr0 TP Sel Enter or write a value to select Fault data displayed in Par 271 [Reslvr0 TP Data]. | Default: Options: | 0 = “Zero” 0 = “Zero” 1 = “R0 Edge Time” 2 = “R0 dEdge” 3 = “R0 dTime” | 4 = “R0 EPR” 5 = “R0 Edge Mode” 6 = “R0 nMax” 7 = “R0 Delta2Err” | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 271 | Reslvr0 TP Data Displays the data selected by Par 270 [Reslvr0 TP Sel]. | Default: Min/Max: | 0 -/±2147483648 | | | RO | | 32-bit Integer | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 272 | Reslvr0 SpdRatio Specifies the speed ratio for the resolver option card port 0. The speed ratio comes from the following formula. Speed ratio = electrical revolutions / mechanical revolutions = pole count / 2. Note: Option 0 = “Zero” was added for firmware version 2.04. | Default: Options: | 1 = 2 poles (x1) 0 = “Zero” 1 = 2 Poles (x1) 2 = 4 Poles (x2) | 3 = 6 Poles (x3) 4 = 8 Poles (x4) 5 = 10 Poles (x5) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 273 | Reslvr0 Carrier Specifies the resolver carrier frequency for the resolver option card port 0. | Units: Default: Min/Max: | Hz 0 0/10000 | | | RO | | 32-bit Integer | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 274 | Reslvr0 In Volts Specifies the resolver input voltage for the resolver option card port 0. | Units: Default: Min/Max: | Volt 0.0000 0.0000/31.0810 | | | RO | | Real | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 275 | Rslvr0 XfrmRatio Specifies the resolver transform ratio for the resolver option card port 0. | Default: Min/Max: | 0.0000 0.0000/4.0950 | | | RO | | Real | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 276 | Reslvr0 CableBal Specifies the resolver cable balance for the resolver option card port 0. | Default: Min/Max: | 0 0/255 | | | RO | | Real | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 277 | Reslvr0 Type Sel Specifies used resolver. The values for options 5 & 12 were changed to “Reserved” for firmware version 2.04. Added new resolver values 15 and 16 for firmware version 4.001. | Default: Options: | 0 = “Disabled” 0 = “Disabled” 1 = “T2014/2087x1” 2 = “T2014/2087x2” 3 = “T2014/2087x5” 4 = “MPL 460v” 5 = “Reserved” 6 = “Siemens 1FT6” 7 = “PrkrHn ZX600” 8 = “Reserved” | 9 = “1326Ax 460v” 10 = “Reserved” 11 = “Reserved” 12 = “Reserved” 13 = “Reserved” 14 = “AmciR11XC107” 15 = “PowerTec R1” 16 = “PowerTec R2” | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

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| No. | Name Description | Values | | | Linkable | Read-Write | Data Type | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
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| 290 | Linear1 CPR Specifies the change in Par 252 [FB Opt1 Posit] for one revolution of the motor shaft. This value is used to scale the calculated speed, based on the change in feedback position. Units are count per motor revolution (CPR). | Units: Default: Min/Max: | CPR 1000 10/100000 | | | RW | 32-bit Integer | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 291 | Lin1Stahl Status Displays the status of the Stahl linear encoder. The Stahl linear encoder works with the MDI option card. <ul style="list-style-type: none">• Bit 8 "No Data Read" indicates that no data can be read from the encoder• Bit 9 "Alarm Optics" displays an alarm when fiber optics require cleaning• Bit 10 "Out of Range" indicates that the encoder read count is at the maximum value (524,287)• Bit 11 "ErrBits16-31" displays a diagnostic error code (refer to bits 16-31)• Bit 16 "Fault Optics" indicates that the read head for fiber optic cable must be cleaned or replaced• Bit 17 "Read Head" indicates that the fiber optic cable read head must be checked, aligned or replaced• Bit 18 "RAM error" indicates that the fiber optic cable read head must be replaced• Bit19 "EPROM error" indicates that there is an error with the communication module, replace read head.• Bit 20 "ROM error" indicates, replace read head.• Bit 22 "No Position" Cycle power to Stahl read head. <table><tr><td>Options</td><td></td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>No Position</td><td>Reserved</td><td>ROM error</td><td>EPROM error</td><td>RAM error</td><td>Read Head</td><td>Fault Optics</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>ErrBits16-31</td><td>Out of Range</td><td>Alarm Optics</td><td>No Data Read</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td></tr><tr><td>Default</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td></tr><tr><td>Bit</td><td>31</td><td>30</td><td>29</td><td>28</td><td>27</td><td>26</td><td>25</td><td>24</td><td>23</td><td>22</td><td>21</td><td>20</td><td>19</td><td>18</td><td>17</td><td>16</td><td>15</td><td>14</td><td>13</td><td>12</td><td>11</td><td>10</td><td>9</td><td>8</td><td>7</td><td>6</td><td>5</td><td>4</td><td>3</td><td>2</td><td>1</td><td>0</td></tr></table> <p>0 = False 1 = True</p> | Options | | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | No Position | Reserved | ROM error | EPROM error | RAM error | Read Head | Fault Optics | Reserved | Reserved | Reserved | Reserved | ErrBits16-31 | Out of Range | Alarm Optics | No Data Read | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | Default | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | Bit | 31 | 30 | 29 | 28 | 27 | 26 | 25 | 24 | 23 | 22 | 21 | 20 | 19 | 18 | 17 | 16 | 15 | 14 | 13 | 12 | 11 | 10 | 9 | 8 | 7 | 6 | 5 | 4 | 3 | 2 | 1 | 0 | | | |
| Options | | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | No Position | Reserved | ROM error | EPROM error | RAM error | Read Head | Fault Optics | Reserved | Reserved | Reserved | Reserved | ErrBits16-31 | Out of Range | Alarm Optics | No Data Read | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Default | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Bit | 31 | 30 | 29 | 28 | 27 | 26 | 25 | 24 | 23 | 22 | 21 | 20 | 19 | 18 | 17 | 16 | 15 | 14 | 13 | 12 | 11 | 10 | 9 | 8 | 7 | 6 | 5 | 4 | 3 | 2 | 1 | 0 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 296 | Motor Freq Ref Currently not used. Note: This parameter was added for firmware version 2.03. | Units: Default: Min/Max: | | | | RO | Real | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 297 | Output Curr Disp Displays measured RMS motor current with a resolution of 1/10 amperes. | Units: Default: Min/Max: Scale: | Amps 0.0 0.0/9999.9 x 10 | | | RO | 32-bit Integer | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 298 | Elapsed Run Time Displays the total time that the drive has been running (inverter power devices active) with a resolution of 1/10 hour. This parameter is saved in power EE non-volatile memory. The value in this parameter can be changed (written to) by the user. | Units: Default: Min/Max: Scale: | Hrs 0.0 0.0/429496736.0 x 10 | | | RW | 32-bit Integer | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 299 | Elapsed MWHrs Displays the total energy the drive has consumed or produced. Calculated from the absolute magnitude of the product of motor speed and motor torque (power), accumulated over time. This value will increase in both regen and motoring modes of operation. This parameter value can be changed (written to) by the user. | Units: Default: Min/Max: Scale: | MWHrs 0.0 0.0/429496736.0 x 10 | | | RW | 32-bit Integer | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 300 | Motor Spd Fdbk Displays measured motor speed information from the selected feedback device. | Units: Default: Min/Max: Scale: | RPM 0.0000 -/+14112.0000 Par 4 [Motor NP RPM] = 1.0pu | | | RO | Real | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 301 | Motor Speed Ref Displays the speed reference value, after the limit function. This is the input to the error calculator and speed regulator. | Units: Default: Min/Max: Scale: | RPM 0.0000 -/+14112.0000 Par 4 [Motor NP RPM] = 1.0pu | | | RO | Real | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 302 | Spd Reg PI Out Displays the output of the speed regulator. This is the input to torque control. A value of 1.0 represents base torque of the motor. | Units: Default: Min/Max: | P.U. 0.0000 -/+8.0000 pu | | | RO | Real | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 303 | Motor Torque Ref Displays the reference value of motor torque. The actual value of the motor torque is within 5% of this value. | Units: Default: Min/Max: | P.U. 0.0000 -/+8.0000 pu | | | RO | Real | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |




| No. | Name Description | Values | | | Linkable | Read-Write | Data Type | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
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| 304 | Limit Status Displays the limit status of conditions that may be limiting the current reference or torque reference. <ul style="list-style-type: none">• Bit 0 "+MCS Iq Lim" indicates that torque producing current is at its positive limit.• Bit 1 "+MCS Ws Lim" indicates that flux producing torque is at its positive limit.• Bit 2 "0 Ia from +" indicates that torque producing current is limited to zero from the positive direction - refer to Par 353 [Iq Actual Lim].• Bit 3 "+Iq Calc" indicates the calculation for torque producing current has reached its positive limit.• Bit 4 "+Current Lim" indicates that the current reference has reached the positive Motor Current Limit set by Par 356 [Mtr Current Lim].• Bit 5 "+DriveProtOL" indicates that the current reference has reached the positive current limit set by the Open Loop Inverter Overload, shown in Par 343 [OL OpnLp CurrLim].• Bit 6 "+DriveProtCL" indicates that the current reference has reached the positive current limit set by the Closed Loop Inverter Overload, shown in Par 344 [OL ClsLp CurrLim].• Bit 8 "+Torq Limit" indicates that the torque reference has reached the Positive Torque Limit set by Par 125 [Torque Pos Limit].• Bit 9 "Mtrng PwrLim" indicates that the torque reference is being limited by the Motoring Power Limit set by Par 127 [Mtring Power Lim].• Bit 10 "+Torq CurLim" indicates that current reference has reached the Actual Torque Producing Current Limit set by Par 353 [Iq Actual Lim].• Bit 11 "Atune Tq Lim" indicates that the torque reference is being limited by Par 129 [Atune Trq Ref].• Bit 12 "+0 Torq Ena" indicates that the torque reference is limited to zero because Par 157 [Logic Ctrl State] bit 9 "Torq Ref En" is off.• Bit 13 "+0 Curr Ena" indicates that the current reference is limited to zero because Par 157 [Logic Ctrl State] bit 11 "CurrRef En" is off.• Bit 14 "Speed Limit" indicates the collective status of all speed limitations.• Bit 15 "Current Lim" indicates the collective status of all current limitations• Bit 16 "-MCS Iq Lim" indicates that torque producing current is at its negative limit.• Bit 17 "-MCS Ws Lim" indicates that flux producing torque is at its negative limit.• Bit 18 "0 Ia from -" indicates that torque producing current is limited to zero from the negative direction - refer to Par 353 [Iq Actual Lim].• Bit 19 "-Iq Calc" indicates the calculation for torque producing current has reached its negative limit.• Bit 20 "-Current Lim" indicates that the current reference has reached the negative Motor Current Limit set by Par 356 [Mtr Current Lim].• Bit 21 "-DriveProtOL" indicates that the current reference has reached the negative current limit set by the Open Loop Inverter Overload, shown in Par 343 [OL OpnLp CurrLim].• Bit 22 "-DriveProtCL" indicates that the current reference has reached the negative current limit set by the Closed Loop Inverter Overload, shown in Par 344 [OL ClsLp CurrLim].• Bit 24 "-Torq Limit" indicates that the torque reference has reached the Negative Torque Limit set by Par 126 [Torque Neg Limit].• Bit 25 "Regen PwrLim" indicates that the torque reference is being limited by the Regenerative Power Limit set by Par 128 [Regen Power Lim].• Bit 26 "-Torq CurLim" indicates that current reference has reached the Actual Torque Producing Current Limit set by Par 353 [Iq Actual Lim].• Bit 27 "Bus Reg Tq Lim" indicates the bus voltage regulator is active and limiting the regenerative torque.• Bit 28 "-0 Torq Ena" indicates that the torque reference is limited to zero because Par 157 [Logic Ctrl State] bit 9 "Torq Ref En" is off.• Bit 29 "-0 Curr Ena" indicates that the current reference is limited to zero because Par 157 [Logic Ctrl State] bit 11 "CurrRef En" is off.• Bit 30 "Torque Limit" indicates the collective status of all torque limitations.• Bit 31 "Power Limit" indicates the collective status of all power limitations. Options <table><tr><th></th><th>Power Limit</th><th>Torque Limit</th><th>+0 Curr Enbl</th><th>+0 Trq Enbl</th><th>Bus Reg Lim</th><th>+Trq CurLim</th><th>Regen PwrLim</th><th>-Trq Limit</th><th>SpdReg Open</th><th>-DriveProtCL</th><th>-DriveProtOL</th><th>-Current Lim</th><th>-Iq Calc</th><th>0 Iq from -</th><th>-MCS Ws Lim</th><th>-MCS Iq Lim</th><th>Current Lim</th><th>Speed Limit</th><th>+0 Curr Enbl</th><th>+0 Trq Enbl</th><th>Atun Trq Lim</th><th>+Trq CurLim</th><th>Mtrng PwrLim</th><th>+Trq Limit</th><th>+SpdReg Open</th><th>+DriveProtCL</th><th>+DriveProtOL</th><th>+Current Lim</th><th>+Iq Calc</th><th>0 Iq from +</th><th>+MCS Ws Lim</th><th>+MCS Iq Lim</th></tr><tr><td>Default</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td></tr><tr><td>Bit</td><td>31</td><td>30</td><td>29</td><td>28</td><td>27</td><td>26</td><td>25</td><td>24</td><td>23</td><td>22</td><td>21</td><td>20</td><td>19</td><td>18</td><td>17</td><td>16</td><td>15</td><td>14</td><td>13</td><td>12</td><td>11</td><td>10</td><td>9</td><td>8</td><td>7</td><td>6</td><td>5</td><td>4</td><td>3</td><td>2</td><td>1</td><td>0</td></tr></table> 0 = False 1 = True | | Power Limit | Torque Limit | +0 Curr Enbl | +0 Trq Enbl | Bus Reg Lim | +Trq CurLim | Regen PwrLim | -Trq Limit | SpdReg Open | -DriveProtCL | -DriveProtOL | -Current Lim | -Iq Calc | 0 Iq from - | -MCS Ws Lim | -MCS Iq Lim | Current Lim | Speed Limit | +0 Curr Enbl | +0 Trq Enbl | Atun Trq Lim | +Trq CurLim | Mtrng PwrLim | +Trq Limit | +SpdReg Open | +DriveProtCL | +DriveProtOL | +Current Lim | +Iq Calc | 0 Iq from + | +MCS Ws Lim | +MCS Iq Lim | Default | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | Bit | 31 | 30 | 29 | 28 | 27 | 26 | 25 | 24 | 23 | 22 | 21 | 20 | 19 | 18 | 17 | 16 | 15 | 14 | 13 | 12 | 11 | 10 | 9 | 8 | 7 | 6 | 5 | 4 | 3 | 2 | 1 | 0 | | | | |
| | Power Limit | Torque Limit | +0 Curr Enbl | +0 Trq Enbl | Bus Reg Lim | +Trq CurLim | Regen PwrLim | -Trq Limit | SpdReg Open | -DriveProtCL | -DriveProtOL | -Current Lim | -Iq Calc | 0 Iq from - | -MCS Ws Lim | -MCS Iq Lim | Current Lim | Speed Limit | +0 Curr Enbl | +0 Trq Enbl | Atun Trq Lim | +Trq CurLim | Mtrng PwrLim | +Trq Limit | +SpdReg Open | +DriveProtCL | +DriveProtOL | +Current Lim | +Iq Calc | 0 Iq from + | +MCS Ws Lim | +MCS Iq Lim | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Default | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Bit | 31 | 30 | 29 | 28 | 27 | 26 | 25 | 24 | 23 | 22 | 21 | 20 | 19 | 18 | 17 | 16 | 15 | 14 | 13 | 12 | 11 | 10 | 9 | 8 | 7 | 6 | 5 | 4 | 3 | 2 | 1 | 0 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 305 | Mtr Trq Curr Ref Displays the torque current reference present at the output of the current rate limiter. 100% is equal to 1 per unit (pu) rated motor torque. | Units: Default: Min/Max: | P.U. 0.0000 -/+8.0000 pu | | RO | | Real | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 306 | DC Bus Voltage Displays measured bus voltage. Note: The maximum value was increased from 1000.0000 to 1170.0000 for firmware version 3.01. | Units: Default: Min/Max: | Volt 0.0000 0.0000/1170.0000 | | RO | | Real | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 307 | Output Voltage Displays RMS line-to-line fundamental motor voltage. This data is averaged and updated every 50 milliseconds. | Units: Default: Min/Max: | Volt 0.00 0.00/3000.00 | | RO | | Real | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 308 | Output Current Displays measured RMS motor current. | Units: Default: Min/Max: | Amps 0.00 0.00/10000.00 | | RO | | Real | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 309 | % Motor Flux Displays the motor flux in % of nominal. | Units: Default: Min/Max: Scale: | % 0.0 0.0/100.0 100 = 4096 | | RO | | 16-bit Integer | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 310 | Output Freq Displays the motor stator frequency. | Units: Default: Min/Max: | Hz 0.00 -/+250.00 | | RO | | Real | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

| No. | Name Description | Values | | | Linkable | Read-Write | Data Type | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|-----|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------|--------------|-------------|-----------|-------------|----------------|--------------|-------------|--------------|--------------|-----------|--------------|-----------|--------------|--------------|-------------|-------------|---------------|--------------|-------------|-------------|-------------|------------|------------|-----------|-------------|--------------|--------------|--------------|-----------------------|--------------|-----------------------|--|
| 311 | Output Power Motor Power is the calculated product of the torque reference and motor speed feedback. A 125mS filter is applied to this result. Positive values indicate motoring power; negative values indicate regenerative power. Note: The units were changed from kW to Hp for firmware version 2.03. | Units: Hp Default: 0.00 Min/Max: +/-9999.00 | | | | RO | Real | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 312 | MotorFluxCurr FB Displays the measured per unit motor flux producing current. | Units: P.U. Default: 0.0000 Min/Max: 0.0000/1.0000 | | | | RO | Real | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 313 | Heatsink Temp Displays the measured temperature of the drive's heatsink. | Units: degC Default: 0.0000 Min/Max: -30.0000/200.0000 | | | | RO | Real | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 314 | VPL Firmware Rev Displays the major and minor revision levels of the drive's Velocity Position Loop (VPL) software. Notes: The default value was changed from 1.11 to 2.03 for firmware version 2.03. The default value was changed from 2.03 to 3.01 for firmware version 3.01. Changed all values to three decimal places for firmware version 4.001. | Default: 1.003 Min/Max: 0.001/99.999 Scale: 000 | | | | RO | 16-bit Integer | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 315 | VPL Build Number Displays the build number of the drive's Velocity Position Loop (VPL) software. Note: The default value was changed from 8001 to 1 for firmware version 2.03. | Default: 1 Min/Max: 1/10000 | | | | RO | 16-bit Integer | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 316 | SynchLink Status Indicates status of SynchLink functions. <ul style="list-style-type: none">• Bit 0 "FB Opt Prsnt" indicates the presence of an optional feedback daughter card.• Bit 1 "Encdr0 Prsnt" indicates the presence of encoder 0.• Bit 2 "Encdr1 Prsnt" indicates the presence of encoder 1.• Bit 3 "In Sync" indicates SynchLink communications is synchronized.• Bit 4 "Tx Active" indicates TX frames are being transmitted downstream from this node.• Bit 5 "Rx Active" indicates RX frames are being received from nodes upstream.• Bit 15 "Rx Data Enbl" indicates received data is being updated. Note: Bit 8 "Open Wire" was changed to "Reserved", and bit 12 "SOB Present" and bit 14 "Reset Req'd" were added for firmware 2.04. | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | Options | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | Rx Data Enbl | Reset Req'd | Reserved | SOB Present | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | Rx Active | Tx Active | In Sync | Encdr1 Prsnt | Encdr0 Prsnt | FB Opt Prsnt | | | | |
| | Default | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 = False 1 = True | | | |
| | Bit | 31 | 30 | 29 | 28 | 27 | 26 | 25 | 24 | 23 | 22 | 21 | 20 | 19 | 18 | 17 | 16 | 15 | 14 | 13 | 12 | 11 | 10 | 9 | 8 | 7 | 6 | 5 | 4 | 3 | 2 | 1 | 0 | |
| 317 | SL System Time Displays the SynchLink system time counter. | Units: μ Sec Default: 0 Min/Max: 0/1048575 | | | | RO | 32-bit Integer | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 318 | Posit Spd Output Final output of the position regulator. | Units: RPM Default: 0.0000 Min/Max: +/-14112.0000 Scale: Par 4 [Motor NP RPM] = 1.0pu | | | | RO | Real | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 319 | Selected Trq Ref Displays the actual selected torque reference value after Par 110 [Speed/TorqueMode]. | Units: PU Default: 0.0 Min/Max: +/-8.0 pu | | | | RO | Real | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 320 | Exception Event1 Indicates the presence of certain drive anomalies. In some cases, you may configure the drive's response to these events by entering values in the parameters of the fault/alarm configuration group of the utility file. | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | Options | PWM Asynchro | Precharge Er | MC Firmware | PWM Short | VPL/MC Comm | OverCurrent | Ground Fault | Trans Desat | Bus OverVolt | MC Commisssn | Over Freq | Inertia Test | DSP Error | DSP Mem Err | Ext Fault In | Inv OL Trip | Inv OL Pend | Inv Temp Trip | Inv TempPend | Motor Stall | Mtr OL Pend | Mtr OL Trip | Power Loss | SLink Comm | SLink HW | Ctrl EE Mem | FB Opt1 Loss | FB Opt0 Loss | Encdr1 Loss | Encdr0 Loss | SpdRef Decel | Abs OverSpd | |
| | Default | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 = False 1 = True | |
| | Bit | 31 | 30 | 29 | 28 | 27 | 26 | 25 | 24 | 23 | 22 | 21 | 20 | 19 | 18 | 17 | 16 | 15 | 14 | 13 | 12 | 11 | 10 | 9 | 8 | 7 | 6 | 5 | 4 | 3 | 2 | 1 | 0 | |

[illegible]

[illegible]

| No. | Name Description | Values | | | | Linkable | Read-Write | Data Type | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
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| 333 | 700L FaultStatus Indicates the occurrence of exception events that have been configured as fault conditions for PowerFlex 700L (LiquiFlo) drive. Bit 0 "Dsat Phs U1" indicates that the primary structure detected a Dsat on phase U. Bit 1 "Dsat Phs V1" indicates that the primary structure detected a Dsat on phase V. Bit 2 "Dsat Phs W" indicates that the primary structure detected a Dsat on phase W. Bit 3 "Ovr Current1" indicates that the primary structure detected an over current. Bit 4 "Ovr Volt1" indicates that the primary structure detected an over voltage. Bit 5 "Asym DcLink1" indicates that the primary structure detected an unbalanced DC Link. Bit 6 "Pwr Suply1" indicates that the primary structure detected a power supply failure. Bit 7 "HW Disable1" indicates that the primary structure detected a hardware disable. Bit 8 "Latch Err1" indicates that the primary structure fault was generated but no indicating bit was set. Bit 14 "Cnv NotLogin" indicates that the converter expected but none logged in. Bit 15 "Cnv NotStart" indicates that the converter commanded to start but did not become active. Bit 16 "Dsat Phs U2" indicates that the second structure detected a Dsat on phase U. Bit 17 "Dsat Phs V2" indicates that the second structure detected a Dsat on phase V. Bit 18 "Dsat Phs W2" indicates that the second structure detected a Dsat on phase W. Bit 19 "Ovr Current2" indicates that the second structure detected an over current. Bit 20 "Ovr Volt2" indicates that the second structure detected an over voltage. Bit 21 "Asym DcLink2" indicates that the second structure detected an unbalanced DC Link. Bit 22 "Pwr Suply2" indicates that the second structure detected a power supply failure. Bit 23 "HW Disable2" indicates that the second structure detected a hardware disable. Bit 24 "Latch Err2" indicates that the second structure fault was generated but no indicating bit was set. Note: This parameter was added for firmware version 2.03. | <table><tr><th>Options</th><th>Reserved</th><th>Reserved</th><th>Reserved</th><th>Reserved</th><th>Reserved</th><th>Reserved</th><th>Reserved</th><th>Latch Err2</th><th>HW Disable2</th><th>Pwr Suply2</th><th>Asym DcLink2</th><th>Ovr Volt2</th><th>Ovr Current2</th><th>Dsat Phs W2</th><th>Dsat Phs V2</th><th>Dsat Phs U2</th><th>Cnv NotStart</th><th>Cnv NotLogin</th><th>Reserved</th><th>Reserved</th><th>Reserved</th><th>Reserved</th><th>Reserved</th><th>Latch Err1</th><th>HW Disable1</th><th>Pwr Suply1</th><th>Asym DcLink1</th><th>Ovr Volt1</th><th>Ovr Current1</th><th>Dsat Phs W1</th><th>Dsat Phs V1</th><th>Dsat Phs U1</th></tr><tr><td>Default</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td></tr><tr><td>Bit</td><td>31</td><td>30</td><td>29</td><td>28</td><td>27</td><td>26</td><td>25</td><td>24</td><td>23</td><td>22</td><td>21</td><td>20</td><td>19</td><td>18</td><td>17</td><td>16</td><td>15</td><td>14</td><td>13</td><td>12</td><td>11</td><td>10</td><td>9</td><td>8</td><td>7</td><td>6</td><td>5</td><td>4</td><td>3</td><td>2</td><td>1</td><td>0</td></tr></table> <div>0 = False 1 = True</div> | Options | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | Latch Err2 | HW Disable2 | Pwr Suply2 | Asym DcLink2 | Ovr Volt2 | Ovr Current2 | Dsat Phs W2 | Dsat Phs V2 | Dsat Phs U2 | Cnv NotStart | Cnv NotLogin | Reserved | Reserved | Reserved | Reserved | Reserved | Latch Err1 | HW Disable1 | Pwr Suply1 | Asym DcLink1 | Ovr Volt1 | Ovr Current1 | Dsat Phs W1 | Dsat Phs V1 | Dsat Phs U1 | Default | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | Bit | 31 | 30 | 29 | 28 | 27 | 26 | 25 | 24 | 23 | 22 | 21 | 20 | 19 | 18 | 17 | 16 | 15 | 14 | 13 | 12 | 11 | 10 | 9 | 8 | 7 | 6 | 5 | 4 | 3 | 2 | 1 | 0 | | | | |
| Options | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | Latch Err2 | HW Disable2 | Pwr Suply2 | Asym DcLink2 | Ovr Volt2 | Ovr Current2 | Dsat Phs W2 | Dsat Phs V2 | Dsat Phs U2 | Cnv NotStart | Cnv NotLogin | Reserved | Reserved | Reserved | Reserved | Reserved | Latch Err1 | HW Disable1 | Pwr Suply1 | Asym DcLink1 | Ovr Volt1 | Ovr Current1 | Dsat Phs W1 | Dsat Phs V1 | Dsat Phs U1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Default | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Bit | 31 | 30 | 29 | 28 | 27 | 26 | 25 | 24 | 23 | 22 | 21 | 20 | 19 | 18 | 17 | 16 | 15 | 14 | 13 | 12 | 11 | 10 | 9 | 8 | 7 | 6 | 5 | 4 | 3 | 2 | 1 | 0 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 334 | 700L AlarmStatus Indicates the occurrence of exception events that have been configured as alarm conditions for PowerFlex 700L (LiquiFlo) drive. Bit 0 "NonCnfgFault" Not configured as alarm. Bit 1 "NonCnfgFault" Not configured as alarm. Bit 2 "NonCnfgFault" Not configured as alarm. Bit 3 "NonCnfgFault" Not configured as alarm. Bit 4 "NonCnfgFault" Not configured as alarm. Bit 5 "NonCnfgFault" Not configured as alarm. Bit 6 "NonCnfgFault" Not configured as alarm. Bit 7 "NonCnfgFault" Not configured as alarm. Bit 8 "NonCnfgFault" Not configured as alarm. Bit 14 "NonCnfgFault" Not configured as alarm. Bit 15 "NonCnfgFault" Not configured as alarm. Bit 16 "NonCnfgFault" Not configured as alarm. Bit 17 "NonCnfgFault" Not configured as alarm. Bit 18 "NonCnfgFault" Not configured as alarm. Bit 19 "NonCnfgFault" Not configured as alarm. Bit 20 "NonCnfgFault" Not configured as alarm. Bit 21 "NonCnfgFault" Not configured as alarm. Bit 22 "NonCnfgFault" Not configured as alarm. Bit 23 "NonCnfgFault" Not configured as alarm. Bit 24 "NonCnfgFault" Not configured as alarm. Note: This parameter was added for firmware version 2.03. | <table><tr><th>Options</th><th>Reserved</th><th>Reserved</th><th>Reserved</th><th>Reserved</th><th>Reserved</th><th>Reserved</th><th>Reserved</th><th>NonCnfgFault</th><th>NonCnfgFault</th><th>NonCnfgFault</th><th>NonCnfgFault</th><th>NonCnfgFault</th><th>NonCnfgFault</th><th>NonCnfgFault</th><th>NonCnfgFault</th><th>NonCnfgFault</th><th>NonCnfgFault</th><th>Reserved</th><th>Reserved</th><th>Reserved</th><th>Reserved</th><th>Reserved</th><th>NonCnfgFault</th><th>NonCnfgFault</th><th>NonCnfgFault</th><th>NonCnfgFault</th><th>NonCnfgFault</th><th>NonCnfgFault</th><th>NonCnfgFault</th><th>NonCnfgFault</th></tr><tr><td>Default</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td></tr><tr><td>Bit</td><td>31</td><td>30</td><td>29</td><td>28</td><td>27</td><td>26</td><td>25</td><td>24</td><td>23</td><td>22</td><td>21</td><td>20</td><td>19</td><td>18</td><td>17</td><td>16</td><td>15</td><td>14</td><td>13</td><td>12</td><td>11</td><td>10</td><td>9</td><td>8</td><td>7</td><td>6</td><td>5</td><td>4</td><td>3</td><td>2</td><td>1</td><td>0</td></tr></table> <div>0 = False 1 = True</div> | Options | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | NonCnfgFault | NonCnfgFault | NonCnfgFault | NonCnfgFault | NonCnfgFault | NonCnfgFault | NonCnfgFault | NonCnfgFault | NonCnfgFault | NonCnfgFault | Reserved | Reserved | Reserved | Reserved | Reserved | NonCnfgFault | NonCnfgFault | NonCnfgFault | NonCnfgFault | NonCnfgFault | NonCnfgFault | NonCnfgFault | NonCnfgFault | Default | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | Bit | 31 | 30 | 29 | 28 | 27 | 26 | 25 | 24 | 23 | 22 | 21 | 20 | 19 | 18 | 17 | 16 | 15 | 14 | 13 | 12 | 11 | 10 | 9 | 8 | 7 | 6 | 5 | 4 | 3 | 2 | 1 | 0 | | | | | | | |
| Options | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | NonCnfgFault | NonCnfgFault | NonCnfgFault | NonCnfgFault | NonCnfgFault | NonCnfgFault | NonCnfgFault | NonCnfgFault | NonCnfgFault | NonCnfgFault | Reserved | Reserved | Reserved | Reserved | Reserved | NonCnfgFault | NonCnfgFault | NonCnfgFault | NonCnfgFault | NonCnfgFault | NonCnfgFault | NonCnfgFault | NonCnfgFault | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Default | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Bit | 31 | 30 | 29 | 28 | 27 | 26 | 25 | 24 | 23 | 22 | 21 | 20 | 19 | 18 | 17 | 16 | 15 | 14 | 13 | 12 | 11 | 10 | 9 | 8 | 7 | 6 | 5 | 4 | 3 | 2 | 1 | 0 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 335 | Abs OverSpd Lim  Sets an incremental speed above Par 76 [Fwd Speed Limit] and below Par 75 [Rev Speed Limit] that is allowable before the drive indicates its speed is out of range. | Units: RPM Default: 352.8000 Min/Max: 0.0000/1750.0000 Scale: Par 4 [Motor NP RPM] = 1.0pu | | | | RW | Real | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 336 | Motor OL Factor  Sets the minimum level of current that causes a motor overload trip under continuous operation. Current levels below this value will not result in an overload trip. For example, a service factor of 1.15 implies continuous operation up to 115% of nameplate motor current. | Units: P.U. Default: 1.1500 Min/Max: 1.0000/2.0000 | | | | RW | Real | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |




| No. | Name Description | Values | | | Linkable | Read-Write | Data Type |
|-----|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------|-------------------------------------|--|----------|------------|-----------|
| 337 | Mtr I2T Curr Min  Sets the minimum current threshold for the motor overload (I ² T) function. The value indicates minimum current at the minimum speed, Par 338 [Mtr I2T Spd Min], and these are the first current/speed breakpoint. From this point the current threshold is linear to the value specified by Par 336 [Motor OL Factor]. | Units: Default: Min Max: | P.U. 0.5000 0.0500/2.0000 | | | RW | Real |
| 338 | Mtr I2T Spd Min  Sets the minimum speed for the motor overload (I ² T) function. The value indicates minimum speed below the minimum current threshold Par 337 [Mtr I2T Curr Min], and these are the first current/speed breakpoint. From this point the current threshold is linear to the value specified by the motor service factor Par 336 [Motor OL Factor]. For more information, please see Motor Overload on page C-5 . | Units: Default: Min/Max: | P.U. 1.0000 0.0500/1.0000 | | | RW | Real |
| 339 | Mtr I2T Calibrat  Sets the current calibration level for the motor overload (I ² T) function. The value indicates the current level that the drive will fault at this current in 60 seconds. | Units: Default: Min/Max: | P.U. 2.0000 1.1000/4.0000 | | | RW | Real |
| 340 | Mtr I2T Trp ThrH Displays the trip threshold current for the motor overload (I ² T) function. The value depends on the motor speed, and is calculated from the minimum current Par 337 [Mtr I2T Curr Min], the minimum speed Par 338 [Mtr I2T Spd Min] and the motor service factor Par 336 [Motor OL Factor]. | Units: Default: Min/Max: | P.U. 1.1500 0.0500/2.0000 | | | RO | Real |
| 341 | Mtr I2T Count The accumulator for Motor Overload detection (Motor I ² T function). When the motor runs at the over rated motor current, the accumulator starts counting up. If the motor runs at below rated motor current, the accumulator counts down. If the value of this parameter exceeds 0.5, the "Motor OLoad Pend" alarm (fault 12) occurs. If the value of this parameter exceeds 1.0, the "Motor OLoad Trip" fault (fault 11) occurs. The value of this parameter is saved in non-volatile memory after power-down if Par 153 [Control Options], bit 20 "Motor OL Ret" is on. Toggling bit 20 of Par 153 [Control Options] clears the value of this parameter. Note: This parameter was added for firmware version 3.01. | Default: Min/Max: | 0.0 0.0/1.5 | | | RO | Real |
| 343 | OL OpnLp CurrLim Displays the current limit set by the Open Loop Inverter Overload (OL) function. This function sets this current limit based on stator current feedback and the current ratings of the drive - continuous and short term (three-second rating). Typically the drive will have a sixty-second rating of 110% of continuous current and a three-second rating at 150% of the continuous. Under normal operating conditions, the open loop function sets this current limit to the short term (three-second) rating. If the function detects an overload, it lowers the limit to the continuous level. After a period of time (typically one to three minutes), the function returns the limit to the short term rating. | Units: Default: Min/Max: | P.U. 8.0000 0.0000/8.0000 | | | RO | Real |
| 344 | OL ClsLp CurrLim Displays the current limit set by the Closed Loop Inverter Overload (OL) function. This function will set a current limit level based on the values in Par 355 [Iq Ref Limited], Par 313 [Heatsink Temp] and the thermal characteristics of the drive. Under normal operating conditions, the function typically sets the limit at 250% of the continuous drive rating. If the function determines that the power device junction temperature is approaching maximum, it will reduce this limit to the level required to prevent additional heating of the inverter. This level could be as low as the continuous rating of the drive. If the inverter temperature decreases, the function will raise the limit to a higher level. Disable this protection by setting bit 13 "OL ClsLpDsbl" of Par 153 [Control Options]. | Units: Default: Min/Max: | P.U. 8.0000 0.0000/8.0000 | | | RO | Real |
| 345 | Drive OL JnctTmp Displays the calculated junction temperature of the power semiconductors in the inverter. The calculation uses the values of Par 313 [Heatsink Temp], Par 355 [Iq Ref Limited], and inverter thermal characteristics contained in the power EE memory. If this value exceeds the maximum junction temperature (visible in Par 348 [Drive OL TP Data] when Par 347 [Drive OL TP Sel] option 12 "JnctTmpMax" is selected), two faults occur: Inverter Overtemperature Fault (fault code 15), and Junction Overtemperature Fault - indicated by bit 7 "Jnc OverTemp" of Par 346 [Drive OL Status]. | Units: Default: Min/Max: | degC 0.0000 -50.0000/300.0000 | | | RO | Real |

| No. | Name Description | Values | | | | Linkable | Read-Write | Data Type | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
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| 346 | Drive OL Status Indicates the status of various overload (OL) conditions. <ul style="list-style-type: none">Bit 0 "NTC Shorted" indicates the Negative Temperature Coefficient (NTC) device has a short circuit.Bit 1 "NTC Open" indicates the NTC has an open circuit.Bit 2 "HS OverTemp" indicates heatsink temperature is above 105C for ratings 1.1-11.0A, 115C for 14-34A, 100C for 40-52A.Bit 3 "HS Pending" indicates heatsink temperature is above 95C for ratings 1.1 -11A, 105C for 14- 34A, 90C for 40- 52A.Bit 4 "IT Trip" indicates the drive has exceed the 3 second rating of either the 150% normal duty rating or 200% of the heavy duty rating.Bit 5 "IT Pending" indicates the drive OL integrator is at 50% of the time out time.Bit 6 "IT Foldback" indicates the drive closed loop current limit is in a fold back condition. The value of the fold back is proportional to the calculated junction temperature.Bit 7 "Jnc Over Temp" indicates the junction temperature has exceeded the maximum temperature for the power semiconductor device. <table><tr><td>Options</td><td></td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Jnc OverTemp</td><td>IT Foldback</td><td>IT Pending</td><td>IT Trip</td><td>HS Pending</td><td>HS OverTemp</td><td>NTC Open</td><td>NTC Shorted</td></tr><tr><td>Default</td><td></td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td></tr><tr><td>Bit</td><td></td><td>15</td><td>14</td><td>13</td><td>12</td><td>11</td><td>10</td><td>9</td><td>8</td><td>7</td><td>6</td><td>5</td><td>4</td><td>3</td><td>2</td><td>1</td><td>0</td></tr></table> <div>0 = False 1 = True</div> | Options | | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | Jnc OverTemp | IT Foldback | IT Pending | IT Trip | HS Pending | HS OverTemp | NTC Open | NTC Shorted | Default | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | Bit | | 15 | 14 | 13 | 12 | 11 | 10 | 9 | 8 | 7 | 6 | 5 | 4 | 3 | 2 | 1 | 0 | | | | | | | |
| Options | | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | Jnc OverTemp | IT Foldback | IT Pending | IT Trip | HS Pending | HS OverTemp | NTC Open | NTC Shorted | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Default | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Bit | | 15 | 14 | 13 | 12 | 11 | 10 | 9 | 8 | 7 | 6 | 5 | 4 | 3 | 2 | 1 | 0 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 347 | Drive OL TP Sel Enter or write a value to select the drive overload data displayed in Par 348 [Drive OL TP Data]. Note: Value 44 "HH PwrBdTemp" was added for firmware version 2.04. Added values 45 "IGBT CndLoss", 46 "IGBT SwtLoss" and 47 "Fwd CndLoss" for firmware version 3.03. | <div>Default: 0 = "Zero"</div> <div>Options: 0 = "Zero" 24 = "flgbtWatts" 1 = "fAbsIsCurr" 25 = "ilgbtPerMod" 2 = "fDelta" 26 = "fFdThres" 3 = "fAbsIqCurr" 27 = "fFdSlope" 4 = "fOL_f" 28 = "fFdJunCase" 5 = "fOL_m" 29 = "fFdWatts" 6 = "fOL_k" 30 = "fMaxHsDegc" 7 = "fOL_g" 31 = "fCsImp" 8 = "fOL_intg" 32 = "fCsFltr" 9 = "fCL_intg" 33 = "fPwmHz" 10 = "fInvOLClim" 34 = "fElecHz" 11 = "fJuncDegc" 35 = "fModldex" 12 = "fJunTmprMax" 36 = "fBoost" 13 = "f60sPUCur" 37 = "fTotalWatts" 14 = "f60sAmp" 38 = "fHSDegc" 15 = "f3sPUCur" 39 = "iAdconv" 16 = "f3sAmp" 40 = "Jct Temp" 17 = "fRatioInvMtr" 41 = "Jct Tmp HiHp" 18 = "fRatioMtrInv" 42 = "Jct Tmp Fwd" 19 = "iConvertStat" 43 = "HH Loss Intg" 20 = "flgbtThres" 44 = "HH PwrBdTemp" 21 = "flgbtSlope" 45 = "IGBT CndLoss" 22 = "flgbtEnergy" 46 = "IGBT SwtLoss" 23 = "flgbtJuncase" 47 = "Fwd CndLoss"</div> | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 348 | Drive OL TP Data Displays the value selected by Par 347 [Drive OL TP Sel]. | <div>Default: 0.0000</div> <div>Min/Max: -/+2200000000.0000</div> | | | | | RO | Real | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 350 | Iq Actual Ref Displays the value of motor current reference that is present at the output of the divide by flux calculation. | <div>Units: P.U.</div> <div>Default: 0.0000</div> <div>Min/Max: -/+8.0000 pu</div> | | | | | RO | Real | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 351 | Iq Ref Trim Provides an external source to command, trim or offset the internal motor current reference. This value is summed with Par 350 [Iq Actl Ref] before the current limit is applied. Scaling is in per unit motor current. | <div>Units: P.U.</div> <div>Default: 0.0000</div> <div>Min/Max: -/+8.0000 pu</div> | | | | | ✓ | RW | Real | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 352 | Is Actual Lim Displays the largest allowable stator motor current. The range of allowable motor current is limited by the maximum drive current. Scaling is in per unit motor current. | <div>Units: P.U.</div> <div>Default: 1.0000</div> <div>Min/Max: 0.0000/8.0000</div> | | | | | | RO | Real | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 353 | Iq Actual Lim Displays the largest allowable torque producing (Iq) motor current. The range of allowable Iq motor current is limited by the maximum drive current and is adjusted by the motor flux current. Scaling is in per unit Iq motor current. | <div>Units: P.U.</div> <div>Default: 1.0000</div> <div>Min/Max: 0.0000/8.0000</div> | | | | | | RO | Real | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 354 | Iq Rate Limit Enter the maximum rate of change for Current Reference, in per unit current / sec. Par 90 [Spd Reg BW] will be limited to 2/3 of this value. | <div>Units: /Sec</div> <div>Default: 1000.0000</div> <div>Min/Max: 5.0000/10000.0000</div> | | | | | ✓ | RW | Real | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 355 | Iq Ref Limited Displays the current reference output of the rate limiter. | <div>Units: P.U.</div> <div>Default: 0.0000</div> <div>Min/Max: -/+8.0000 pu</div> | | | | | | RO | Real | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 356 | Mtr Current Lim Sets the largest allowable motor stator current. The online maximum value of this parameter is Par 2 [Motor NP FLA]. The online minimum value is 105% of the current indicated in Par 488 [Flux Current]. | <div>Units: P.U.</div> <div>Default: 1.5000</div> <div>Min/Max: 0.0000/Calculated</div> | | | | | ✓ | RW | Real | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

| No. | Name Description | Values | | | Linkable | Read-Write | Data Type |
|-------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------|------------|----------------|
| 357 | Curr Ref TP Sel Enter or write a value to select current reference data displayed in Par 358 [Curr Ref TP Data]. Note: Added values 20 - 52 for firmware version 3.03. Added value 53 for firmware version 4.001. | Default: 0 = "Zero" Options: | 0 = "Zero" 1 = "Iq Sum" 2 = "Iq Lim In" 3 = "Iq Lim Out" 4 = "Iq Rate Stat" 5 = "IqLmOutNoFil" 6 = "MtrCrLimStat" 7 = "Lim'dMtrCrLm" 8 = "Iq Act Limit" 9 = "Iq Cal Gain" 10 = "Min Lim Stat" 11 = "Iq Prescale" 12 = "Iqtols Stat" 13 = "Flux Status" 14 = "Flux LPF Out" 15 = "Is Per Unit" 16 = "Iq Actl +Lim" 17 = "Iq Actl -Lim" 18 = "Flx Filt Hld" 19 = "Inverse Flux" 20 = "Impedance PU" 21 = "ImpedanceOhm" 22 = "Rated We" 23 = "Leak Induct" 24 = "Rated Torque" 25 = "Rated Ids" 26 = "Rated Iqs" | 27 = "Rated Vds" 28 = "Rated Vqs" 29 = "RatedLamdVds" 30 = "RatedLamdIds" 31 = "RatedLamd ds" 32 = "RatedLamd qs" 33 = "Iqs" 34 = "Ids" 35 = "Vqs" 36 = "Vds" 37 = "We" 38 = "Torque" 39 = "Torque Filtr" 40 = "Lamda Ids" 41 = "Lamda Iqs" 42 = "Lamda Vds" 43 = "Lamda Vqs" 44 = "Lamda ds" 45 = "Lamda qs" 46 = "Lamda ds Flt" 47 = "Lamda qs Flt" 48 = "Torque Ref" 49 = "Iq Reference" 50 = "1/Motor Pole" 51 = "1/Rated Iqs" 52 = "1/Rated Torq" 53 = "Rs Temp Coef" | | | |
| 358 | Curr Ref TP Data Sets the limit value for the motor torque producing current. | Units: P.U. Default: 0.0000 Min/Max: +/-8.0000 pu | | | | RO | Real |
| 359 | Motor Flux Est The Q-axis motor voltage is divided by the motor frequency while field weakening is active. This value is used to convert the torque command to a motor current (Iqs) command. | Units: P.U. Default: 0.0000 Min/Max: +/-8.0000 pu | | | | RO | Real |
| 360 | Min Flux Sets the smallest level of flux used to convert Par 303 [Motor Torque Ref] to a current reference above base speed. Note: Changed the minimum value from "0.2500" to "0.1000" for firmware version 4.001. | Units: P.U. Default: 0.2500 Min/Max: 0.1000/1.0000 | | | ✓ | RW | Real |
| 361 | Flx LpassFilt BW Sets the bandwidth of the low pass filter that adjusts the response of the flux estimate used in the torque to current conversion. Since the field time constant varies between motors, a better control response may be obtained by adjusting the filter time constant. Normally this parameter is not changed unless a significant disturbance occurs as the motor enters field weakening AND Par 360 [Min Flux] is less than 1 per unit. | Units: R/S Default: 12.0000 Min/Max: 0.5000/100.0000 | | | ✓ | RW | Real |
| 362 | Current Limit Gain Sets the responsiveness of the current limit. This parameter should not be changed by the user. Note: This parameter was added for firmware version 2.03. | Default: 250 Min/Max: 0/10000 | | | | RW | 16-bit Integer |
| 363 | Ki Current Limit Current Limit Integral gain. This gain is applied to the current limit error signal to eliminate steady state current limit error. A larger value increases overshoot during a step of motor current/load. This parameter should not be changed by the user. Note: This parameter was added for firmware version 2.03. | Default: 1500 Min/Max: 0/10000 | | | | RW | 16-bit Integer |
| 364 | Kd Current Limit Current Limit Derivative gain. This gain is applied to the sensed motor current to anticipate a current limit condition. A larger value reduces overshoot of the current relative to the current limit value. This parameter should not be changed by the user. Note: This parameter was added for firmware version 2.03. | Default: 500 Min/Max: 0/10000 | | | | RW | 16-bit Integer |
| 365 366 367 | Fdbk LsCnfg Pri Fdbk LsCnfg Alt Fdbk LsCnfgPosit Enter a value to configure the drive's response to an Encoder 0/1 Loss exception event. <ul style="list-style-type: none">0 - Ignore configures the drive to continue running, as normal, when this event occurs.1 - Alarm configures the drive to continue running and set the appropriate alarm bit when this event occurs.2 - FltCoastStop configures the drive to perform a coast stop and set the appropriate fault bit, in response to this event. | Default: 2 = "FltCoastStop" Default: 1 = "Alarm" Default: 1 = "Alarm" Options: 1 = "Alarm" 2 = "FltCoastStop" | | | | | |
| 368 | Cnv NotLogin Cfg Configures the 700L drive's response when the active convertor is not logged-in via a DPI port. Note: This parameter was added for firmware version 3.01. | Default: 2 = "FltCoastStop" Options: 0 = "Ignore" 1 = "Alarm" 2 = "FltCoastStop" | | | | | |

| No. | Name Description | Values | | | Linkable | Read-Write | Data Type |
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| 369 | Brake OL Cnfg Enter a value to configure the drive's response to a Brake Overload (OL) Trip exception event. This event is triggered when a Dynamic Brake (DB) overload condition occurs. <ul style="list-style-type: none"> 0 - Ignore configures the drive to continue running, as normal, when this event occurs. 1 - Alarm configures the drive to continue running and set the appropriate alarm bit when this event occurs. 2 - FltCoastStop configures the drive to perform a coast stop and set the appropriate fault bit, in response to this event. 3 - Flt RampStop configures the drive to perform a ramp stop and set the appropriate fault bit, in response to this event. 4 - FltCurLimStp configures the drive to perform a current-limit stop and set the appropriate fault bit, in response to this event. | Default: Options: | 1 = "Alarm" 0 = "Ignore" 1 = "Alarm" 2 = "FltCoastStop" 3 = "Flt RampStop" 4 = "FltCurLimStp" | | | | |
| 370 | HiHp InPhsLs Cfg Selector for the input phase loss configuration. <ul style="list-style-type: none"> 0 - Ignore configures the drive to continue running, as normal, when this event occurs. 1 - Alarm configures the drive to continue running and set the appropriate alarm bit when this event occurs. 2 - FltCoastStop configures the drive to perform a coast stop and set the appropriate fault bit in response to this event. 3 - Flt RampStop configures the drive to perform a ramp stop and set the appropriate fault bit in response to this event. 4 - FltCurLimStp configures the drive to perform a current-limit stop and set the appropriate fault bit in response to this event. Note: The default value was changed from 1 "Alarm" to 3 "Flt RampStop" for firmware version 3.01. | Default Options: | 3 = "Flt RampStop" 0 = "Ignore" 1 = "Alarm" 2 = "FltCoastStop" 3 = "Flt RampStop" 4 = "FltCurLimStp" | | | | |
| 371 | Mtr OL Trip Cnfg Enter a value to configure the drive's response to a Motor Overload (OL) Trip exception event. <ul style="list-style-type: none"> 0 - Ignore configures the drive to continue running, as normal, when this event occurs. 1 - Alarm configures the drive to continue running and set the appropriate alarm bit when this event occurs. 2 - FltCoastStop configures the drive to perform a coast stop and set the appropriate fault bit, in response to this event. 3 - Flt RampStop configures the drive to perform a ramp stop and set the appropriate fault bit, in response to this event. 4 - FltCurLimStp configures the drive to perform a current-limit stop and set the appropriate fault bit, in response to this event. | Default Options: | 2 = "FltCoastStop" 0 = "Ignore" 1 = "Alarm" 2 = "FltCoastStop" 3 = "Flt RampStop" 4 = "FltCurLimStp" | | | | |
| 372 | Mtr OL Pend Cnfg Enter a value to configure the drive's response to a Motor Overload (OL) Pending exception event. <ul style="list-style-type: none"> 0 - Ignore configures the drive to continue running, as normal, when this event occurs. 1 - Alarm configures the drive to continue running and set the appropriate alarm bit when this event occurs. 2 - FltCoastStop configures the drive to perform a coast stop and set the appropriate fault bit, in response to this event. 3 - Flt RampStop configures the drive to perform a ramp stop and set the appropriate fault bit, in response to this event. 4 - FltCurLimStp configures the drive to perform a current-limit stop and set the appropriate fault bit, in response to this event. | Default Options: | 1 = "Alarm" 0 = "Ignore" 1 = "Alarm" 2 = "FltCoastStop" 3 = "Flt RampStop" 4 = "FltCurLimStp" | | | | |
| 373 | Motor Stall Time Enter a value to specify the time delay between when the drive detects a Motor Stall condition and when it declares the exception event. | Units: Default: Min/Max: | Sec 1.0000 0.1000/3000.0000 | | ✓ | RW | Real |
| 374 | Motor Stall Cnfg Enter a value to configure the drive's response to a Motor Stall exception event. <ul style="list-style-type: none"> 0 - Ignore configures the drive to continue running, as normal, when this event occurs. 1 - Alarm configures the drive to continue running and set the appropriate alarm bit when this event occurs. 2 - FltCoastStop configures the drive to perform a coast stop and set the appropriate fault bit, in response to this event. 3 - Flt RampStop configures the drive to perform a ramp stop and set the appropriate fault bit, in response to this event. 4 - FltCurLimStp configures the drive to perform a current-limit stop and set the appropriate fault bit, in response to this event. | Default Options: | 0 = "Ignore" 0 = "Ignore" 1 = "Alarm" 2 = "FltCoastStop" 3 = "Flt RampStop" 4 = "FltCurLimStp" | | | | |

| No. | Name Description | Values | | | Linkable | Read-Write | Data Type |
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| 375 | Inv OT Pend Cnfg Enter a value to configure the drive's response to a Inverter Over-Temperature (OT) Pending exception event. This event is triggered when the Inverter Negative Temperature Coefficient (NTC) function detects the heat-sink temperature reaches to the overload warning level. <ul style="list-style-type: none"> 0 - Ignore configures the drive to continue running, as normal, when this event occurs. 1 - Alarm configures the drive to continue running and set the appropriate alarm bit when this event occurs. 2 - FltCoastStop configures the drive to perform a coast stop and set the appropriate fault bit, in response to this event. 3 - Flt RampStop configures the drive to perform a ramp stop and set the appropriate fault bit, in response to this event. 4 - FltCurLimStp configures the drive to perform a current-limit stop and set the appropriate fault bit, in response to this event. | Default: Options: | 1 = "Alarm" 0 = "Ignore" 1 = "Alarm" 2 = "FltCoastStop" 3 = "Flt RampStop" 4 = "FltCurLimStp" | | | | |
| 376 | Inv OL Pend Cnfg Enter a value to configure the drive's response to an Inverter Overload (OL) Pending exception event. This event is triggered when one of the Inverter Protection Current-Over-Time functions (Open Loop or Closed Loop) detects current and temperature at warning levels. <ul style="list-style-type: none"> 0 - Ignore configures the drive to continue running, as normal, when this event occurs. 1 - Alarm configures the drive to continue running and set the appropriate alarm bit when this event occurs. 2 - FltCoastStop configures the drive to perform a coast stop and set the appropriate fault bit, in response to this event. 3 - Flt RampStop configures the drive to perform a ramp stop and set the appropriate fault bit, in response to this event. 4 - FltCurLimStp configures the drive to perform a current-limit stop and set the appropriate fault bit, in response to this event. | Default: Options: | 1 = "Alarm" 0 = "Ignore" 1 = "Alarm" 2 = "FltCoastStop" 3 = "Flt RampStop" 4 = "FltCurLimStp" | | | | |
| 377 | Inv OL Trip Cnfg Enter a value to configure the drive's response to an Inverter Overload (OL) Trip exception event. This event is triggered when one of the Inverter Protection Current-Over-Time functions (Open Loop or Closed Loop) detects current and temperature at a fault level. <ul style="list-style-type: none"> 0 - Ignore configures the drive to continue running, as normal, when this event occurs. 1 - Alarm configures the drive to continue running and set the appropriate alarm bit when this event occurs. 2 - FltCoastStop configures the drive to perform a coast stop and set the appropriate fault bit, in response to this event. | Default: Options: | 1 = "Alarm" 0 = "Ignore" 1 = "Alarm" 2 = "FltCoastStop" | | | | |
| 378 | Interp Flt Cnfg Enter a value to configure the drive's response to a position interpolator exception event. If the interpolator loses the synchronization pulse or is out of synch, this event occurs. | Default: Options: | 1 = "Alarm" 0 = "Ignore" 1 = "Alarm" 2 = "FltCoastStop" | 3 = "Flt RampStop" 4 = "FltCurLimStp" | | | |
| 379 | Ext Flt/Alm Cnfg Enter a value to configure the drive's response to an External Input exception event. The event is triggered by a digital input that is configured for auxiliary fault or auxiliary aux fault by selecting 3 "Ext Fault" or 38 "ExtFault Inv" in Par 825 [DigIn 1 Sel], Par 826 [DigIn 2 Sel] or Par 827 [DigIn 3 Sel]. <ul style="list-style-type: none"> 0 - Ignore configures the drive to continue running, as normal, when this event occurs. 1 - Alarm configures the drive to continue running and set the appropriate alarm bit when this event occurs. 2 - FltCoastStop configures the drive to perform a coast stop and set the appropriate fault bit, in response to this event. 3 - Flt RampStop configures the drive to perform a ramp stop and set the appropriate fault bit, in response to this event. 4 - FltCurLimStp configures the drive to perform a current-limit stop and set the appropriate fault bit, in response to this event. | Default: Options: | 2 = "FltCoastStop" 0 = "Ignore" 1 = "Alarm" 2 = "FltCoastStop" 3 = "Flt RampStop" 4 = "FltCurLimStp" | | | | |
| 381 | PreChrg Err Cnfg Enter a value to configure the drive's response to a Precharge Error exception event. <ul style="list-style-type: none"> 0 - Ignore configures the drive to continue running, as normal, when this event occurs. 1 - Alarm configures the drive to continue running and set the appropriate alarm bit when this event occurs. 2 - FltCoastStop configures the drive to perform a coast stop and set the appropriate fault bit, in response to this event | Default: Options: | 2 = "Alarm" 0 = "Ignore" 1 = "Alarm" 2 = "FltCoastStop" | | | | |
| 382 | MC Cmd Lim Cnfg Enter a value to configure the drive's response to a Motor-Controller (MC) Command Limitation exception event. This event is triggered when the motor-controller detects limit of the command values used in the motor-controller, and returns the exception event to the Velocity Position Loop (VPL). <ul style="list-style-type: none"> 0 - Ignore configures the drive to continue running, as normal, when this event occurs. 1 - Alarm configures the drive to continue running and set the appropriate alarm bit when this event occurs. 2 - FltCoastStop configures the drive to perform a coast stop and set the appropriate fault bit, in response to this event. | Default: Options: | 2 = "Alarm" 0 = "Ignore" 1 = "Alarm" 2 = "FltCoastStop" | | | | |

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| 390 | SL MultErr Cnfg Enter a value to configure the Drive Module's response to a SynchLink Multiplier error. Refer to Par 927 [SL Mult State] for possible causes for multiplier errors. <ul style="list-style-type: none"> 0 - Ignore configures the drive to continue running, as normal, when this event occurs. 1 - Alarm configures the drive to continue running and set the appropriate alarm bit when this event occurs. 2 - FltCoastStop configures the drive to perform a coast stop and set the appropriate fault bit, in response to this event. 3 - Flt RampStop configures the drive to perform a ramp stop and set the appropriate fault bit, in response to this event. 4 - FltCurLimStp configures the drive to perform a current-limit stop and set the appropriate fault bit, in response to this event. | Default Options: | 2 = "FltCoastStop" 0 = "Ignore" 1 = "Alarm" 2 = "FltCoastStop" 3 = "Flt RampStop" 4 = "FltCurLimStp" | | | | |
|  ATTENTION: Risk of injury or equipment damage exists. Par 390 [SL MultErr Cnfg] lets you determine the action of the drive if communications are disrupted. By default this parameter causes the drive fault and coast to a stop. You can set this parameter so that the drive continues to run. Precautions should be taken to ensure that the setting of this parameter does not create hazards of injury or equipment damage. | | | | | | | |
| 391 | DPI CommLoss Cfg Enter a value to configure the drive's response to the failure of a DPI port. <ul style="list-style-type: none"> 0 - Ignore configures the drive to continue running, as normal, when this event occurs. 1 - Alarm configures the drive to continue running and set the appropriate alarm bit when this event occurs. 2 - FltCoastStop configures the drive to perform a coast stop and set the appropriate fault bit, in response to this event. 3 - Flt RampStop configures the drive to perform a ramp stop and set the appropriate fault bit, in response to this event. 4 - FltCurLimStp configures the drive to perform a current-limit stop and set the appropriate fault bit, in response to this event. | Default Options: | 2 = "FltCoastStop" 0 = "Ignore" 1 = "Alarm" 2 = "FltCoastStop" 3 = "Flt RampStop" 4 = "FltCurLimStp" | | | | |
|  ATTENTION: Risk of injury or equipment damage exists. Par 391 [DPI CommLoss Cfg] lets you determine the action of the drive if communications are disrupted. By default this parameter causes the drive fault and coast to a stop. You can set this parameter so that the drive continues to run. Precautions should be taken to ensure that the setting of this parameter does not create hazards of injury or equipment damage. | | | | | | | |
| 392 | NetLoss DPI Cnfg Enter a value to configure the drive's response to a communication fault from a network card at a DPI port. <ul style="list-style-type: none"> 0 - Ignore configures the drive to continue running, as normal, when this event occurs. 1 - Alarm configures the drive to continue running and set the appropriate alarm bit when this event occurs. 2 - FltCoastStop configures the drive to perform a coast stop and set the appropriate fault bit, in response to this event. 3 - Flt RampStop configures the drive to perform a ramp stop and set the appropriate fault bit, in response to this event. 4 - FltCurLimStp configures the drive to perform a current-limit stop and set the appropriate fault bit, in response to this event. | Default Options: | 2 = "FltCoastStop" 0 = "Ignore" 1 = "Alarm" 2 = "FltCoastStop" 3 = "Flt RampStop" 4 = "FltCurLimStp" | | | | |
|  ATTENTION: Risk of injury or equipment damage exists. Par 392 [NetLoss DPI Cnfg] lets you determine the action of the drive if communications are disrupted. By default this parameter causes the drive fault and coast to a stop. You can set this parameter so that the drive continues to run. Precautions should be taken to ensure that the setting of this parameter does not create hazards of injury or equipment damage. | | | | | | | |
| 393 | BusUndervoltCnfg Enter a value to configure the drive's response to the DC Bus voltage falling below the minimum value. <ul style="list-style-type: none"> 0 - Ignore configures the drive to continue running, as normal, when this event occurs. 1 - Alarm configures the drive to continue running and set the appropriate alarm bit when this event occurs. 2 - FltCoastStop configures the drive to perform a coast stop and set the appropriate fault bit, in response to this event. 3 - Flt RampStop configures the drive to perform a ramp stop and set the appropriate fault bit, in response to this event. 4 - FltCurLimStp configures the drive to perform a current-limit stop and set the appropriate fault bit, in response to this event. | Default Options: | 1 = "Alarm" 0 = "Ignore" 1 = "Alarm" 2 = "FltCoastStop" 3 = "Flt RampStop" 4 = "FltCurLimStp" | | | | |

| No. | Name Description | Values | | | Linkable | Read-Write | Data Type |
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| 394 | VoltFdbkLossCnfg Enter a value to configure the drive's response to a communication error between Motor Control (MC) and the motor voltage feedback board. <ul style="list-style-type: none"> 0 - Ignore configures the drive to continue running, as normal, when this event occurs. 1 - Alarm configures the drive to continue running and set the appropriate alarm bit when this event occurs. 2 - FltCoastStop configures the drive to perform a coast stop and set the appropriate fault bit, in response to this event. | Default: Options: | 2 = "FltCoastStop" 0 = "Ignore" 1 = "Alarm" 2 = "FltCoastStop" | | | | |
| 395 | +Sft OvrTrvlCnfg Enter a value to configure the drive's response to a positive software positioning over travel condition. <ul style="list-style-type: none"> 0 - Ignore configures the drive to continue running, as normal, when this event occurs. 1 - Alarm configures the drive to continue running and set the appropriate alarm bit when this event occurs. 2 - FltCoastStop configures the drive to perform a coast stop and set the appropriate fault bit, in response to this event. 3 - Flt RampStop configures the drive to perform a ramp stop and set the appropriate fault bit, in response to this event. 4 - FltCurLimStp configures the drive to perform a current-limit stop and set the appropriate fault bit, in response to this event. | Default Options: | 1 = "Alarm" 0 = "Ignore" 1 = "Alarm" 2 = "FltCoastStop" 3 = "Flt RampStop" 4 = "FltCurLimStp" | | | | |
| 396 | -Sft OvrTrvlCnfg Enter a value to configure the drive's response to a negative software positioning over travel condition. <ul style="list-style-type: none"> 0 - Ignore configures the drive to continue running, as normal, when this event occurs. 1 - Alarm configures the drive to continue running and set the appropriate alarm bit when this event occurs. 2 - FltCoastStop configures the drive to perform a coast stop and set the appropriate fault bit, in response to this event. 3 - Flt RampStop configures the drive to perform a ramp stop and set the appropriate fault bit, in response to this event. 4 - FltCurLimStp configures the drive to perform a current-limit stop and set the appropriate fault bit, in response to this event. | Default Options: | 1 = "Alarm" 0 = "Ignore" 1 = "Alarm" 2 = "FltCoastStop" 3 = "Flt RampStop" 4 = "FltCurLimStp" | | | | |
| 397 | +Hrd OvrTrvlCnfg Enter a value to configure the drive's response to a positive hardware positioning over travel condition. <ul style="list-style-type: none"> 0 - Ignore configures the drive to continue running, as normal, when this event occurs. 1 - Alarm configures the drive to continue running and set the appropriate alarm bit when this event occurs. 2 - FltCoastStop configures the drive to perform a coast stop and set the appropriate fault bit, in response to this event. 3 - Flt RampStop configures the drive to perform a ramp stop and set the appropriate fault bit, in response to this event. 4 - FltCurLimStp configures the drive to perform a current-limit stop and set the appropriate fault bit, in response to this event. | Default Options: | 1 = "Alarm" 0 = "Ignore" 1 = "Alarm" 2 = "FltCoastStop" 3 = "Flt RampStop" 4 = "FltCurLimStp" | | | | |
| 398 | -Hrd OvrTrvlCnfg Enter a value to configure the drive's response to a negative hardware positioning over travel condition. <ul style="list-style-type: none"> 0 - Ignore configures the drive to continue running, as normal, when this event occurs. 1 - Alarm configures the drive to continue running and set the appropriate alarm bit when this event occurs. 2 - FltCoastStop configures the drive to perform a coast stop and set the appropriate fault bit, in response to this event. 3 - Flt RampStop configures the drive to perform a ramp stop and set the appropriate fault bit, in response to this event. 4 - FltCurLimStp configures the drive to perform a current-limit stop and set the appropriate fault bit, in response to this event. | Default Options: | 1 = "Alarm" 0 = "Ignore" 1 = "Alarm" 2 = "FltCoastStop" 3 = "Flt RampStop" 4 = "FltCurLimStp" | | | | |
| 399 | Position ErrCnfg Enter a value to configure the drive's response to a position error condition. <ul style="list-style-type: none"> 0 - Ignore configures the drive to continue running, as normal, when this event occurs. 1 - Alarm configures the drive to continue running and set the appropriate alarm bit when this event occurs. 2 - FltCoastStop configures the drive to perform a coast stop and set the appropriate fault bit, in response to this event. 3 - Flt RampStop configures the drive to perform a ramp stop and set the appropriate fault bit, in response to this event. 4 - FltCurLimStp configures the drive to perform a current-limit stop and set the appropriate fault bit, in response to this event. | Default Options: | 1 = "Alarm" 0 = "Ignore" 1 = "Alarm" 2 = "FltCoastStop" 3 = "Flt RampStop" 4 = "FltCurLimStp" | | | | |
| 400 | Rated Amps This displays the current rating of the inverter. The drive automatically sets this at power up. Note: The maximum value was changed for firmware version 2.03. | Units: Default: Min/Max: | Amps 22.0000 0.1000/2500.0000 | | | RO | Real |
| 401 | Rated Volts This displays the name plate voltage rating of the inverter. The drive automatically sets this at power up. | Units: Default: Min/Max: | Volt 480 75/750 | | | RO | 16-bit Integer |

| No. | Name Description | Values | Linkable | Read-Write | Data Type |
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| 402 | PWM Frequency Sets the carrier frequency for the PWM output of the drive. Drive derating may occur at higher carrier frequencies. For derating information, refer to the PowerFlex Reference Manual. Default is dependant on power structure of the drive. Note: This parameter was changed for firmware version 3.04 to not allow changes while the drive is running. | Units: kHz Default: 2.0000 (Fr 5, 6, 9) 4.0000 (Fr 1-4) Min/Max: 1.0000/15.0000 (10.0000 Fr 5, 6, 9) | | RW | Real |
| 403 | Voltage Class Sets the drive configuration for high or low voltage class (i.e. a 400 or 480V ac drive). Allows choice of configuration and affects many drive parameters including drive rated current, voltage, power, over loads and maximum PWM carrier frequency. Note: This parameter was changed for firmware version 3.04 to allow the drive to produce an output voltage limited by Par 531 [Maximum Voltage] (or maximum voltage defined by the DC bus voltage level, Par 306 [DC Bus Voltage], and DC bus voltage utilization limit, Par 500 [Bus Util Limit]). | Default: 3 = "High Voltage" Options: 2 = "Low Voltage" 3 = "High Voltage" | | | |
| 404 | Dead Time The time delay between turning off and turning on an upper device and a lower device in the power structure. This parameter is set at power up and is not user adjustable. | Units: µSec Default: 5.0000 Min/Max: 2.0000/100.0000 | | RO | Real |
| 405 | Dead Time Comp The amount of voltage correction used to compensate for the loss of voltage during dead time. Do not adjust. Contact factory for alternative settings. | Units: % Default: 0 Min/Max: 0/200 | | RW | 16-bit Integer |
| 406 | Power Loss Mode Enter a value to configure the drive's response to a loss of input power, as sensed by an input voltage below the value specified in Par 408 [Power Loss Level]. Enter a value of 0 to make the drive coast (supply no current to the motor) during the power loss time specified in Par 407 [Power Loss Time]. Enter a value of 2 to make the drive continue "normal" operation during the power loss time. Enter a value of 5 to make the drive provide only motor flux current during the power loss time. | Default: 0 = "Coast" Options: 0 = "Coast" 3 = "Reserved" 1 = "Reserved" 4 = "Reserved" 2 = "Continue" 5 = "Flux Only" | | | |
| 407 | Power Loss Time Sets the time that the drive will remain in power loss mode before a fault is detected. | Units: Sec Default: 2.0000 Min/Max: 0.0000/60.0000 | | RW | Real |
| 408 | Power Loss Level Sets the bus voltage level at which ride-through begins and modulation ends. When bus voltage falls below this level, the drive prepares for an automatic restart. Enter a percentage of the bus voltage derived from the high voltage setting for the voltage class For example: on a 400-480V drive, $0.221 \times 480V_{ac} \times \sqrt{2} = 150V_{dc}$ | Units: % Default: 22.1 Min/Max: 15/95 Scale: 0 | | RW | 16-bit Integer |
| 409 | Line Undervolts Controls the level of bus voltage that is needed to complete precharge and sets the level for undervoltage alarm/fault detection. Enter a percentage of the bus voltage derived from the value in Par 401 [Rated Volts]. For example: on a 480V drive, $0.615 \times 480V_{ac} \times \sqrt{2} = 418V_{dc}$ | Units: % Default: 61.5000 Min/Max: 10.0000/90.0000 | | RW | Real |
| 410 | PreChrg TimeOut Sets the time duration of precharge. If bus voltage does not stabilize within this amount of time, a Precharge Error exception event occurs. | Units: Sec Default: 30.0000 Min/Max: 10.0000/180.0000 | | RW | Real |
| 411 | PreChrg Control Must equal 1 to allow drive to exit precharge and begin to run. Link this parameter to a controller output word to coordinate the precharge of multiple drives. | Default: 1 = "Enbl PrChrg" Options: 0 = "Hold PrChrg" 1 = "Enbl PrChrg" | | | |


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| 412 | Power EE TP Sel Enter or write a value to select drive power EEPROM data displayed in Par 413 [Power EE TP Data]. The default is 0 "Zero". Note: Options 74 - 92 were changed and options 93 - 111 were added for firmware version 3.01. Options: <table><tr><td>0 = Zero</td><td>19 = Bus VltScale</td><td>38 = IGBT Rated A</td><td>61 = ConvT Type</td><td>80 = HH1 P/B ID</td><td>99 = HH2 P/B ID</td></tr><tr><td>1 = Volt Class</td><td>20 = Sml PS Watts</td><td>39 = IGBT V Thres</td><td>62 = DC Bus Induc</td><td>81 = HH1 S/W ID</td><td>100 = HH2 S/W ID</td></tr><tr><td>2 = Assy Rev</td><td>21 = Sml PS Min V</td><td>40 = IGBT Slope R</td><td>63 = AC Inp Induc</td><td>82 = HH1 P/B Rev</td><td>101 = HH2 P/B Rev</td></tr><tr><td>3 = ASA S/N</td><td>22 = Lrg PS Watts</td><td>41 = IGBT Sw Engy</td><td>64 = Precharg Res</td><td>83 = HH1 S/W Rev</td><td>102 = HH2 S/W Rev</td></tr><tr><td>4 = Manuf Year</td><td>23 = Lrg PS Min V</td><td>44 = IGBT CS Tres</td><td>65 = PrechThrm Tc</td><td>84 = HH1 Extr Data</td><td>103 = HH2 ExtrData</td></tr><tr><td>5 = Manuf Month</td><td>24 = Inv Rated Kw</td><td>45 = IGBT CS Tc</td><td>66 = Mtr NP Units</td><td>85 = HH1 VoltIndx</td><td>104 = HH2 VoltIndx</td></tr><tr><td>6 = Manuf Day</td><td>25 = Inv Rated V</td><td>46 = Diode V Thrs</td><td>67 = Mtr NP Power</td><td>86 = HH1 SizelIndx</td><td>105 = HH2 SizelIndx</td></tr><tr><td>7 = Tst ProcStat</td><td>26 = Inv Rated A</td><td>47 = Diode SlopeR</td><td>68 = Mtr NP Volts</td><td>87 = HH1 Option</td><td>106 = HH2 Option</td></tr><tr><td>8 = Life PwrCycl</td><td>27 = Inv 1min Amp</td><td>48 = Diode JC Tr</td><td>69 = Mtr NP Amps</td><td>88 = HH1 HrdPrdct</td><td>107 = HH2 HrdPrdct</td></tr><tr><td>9 = Life Pwrup</td><td>28 = inv 3sec Amp</td><td>49 = Diode JC Tc</td><td>70 = Mtr NP Freq</td><td>89 = HH1 H/W Mdfy</td><td>108 = HH2 H/W Mdfy</td></tr><tr><td>10 = Life RunTime</td><td>29 = SW OverC Amp</td><td>50 = GBT Tjmax</td><td>71 = Mtr NP RPM</td><td>90 = HH1 1V/Amp</td><td>109 = HH2 1V/Amp</td></tr><tr><td>11 = Kw Accum</td><td>30 = DC Bus Cap</td><td>51 = HS Max DegC</td><td>72 = Mtr IR Vdrop</td><td>91 = HH1 2s/Amp</td><td>110 = HH2 2s/Amp</td></tr><tr><td>12 = Mw Hrs Accum</td><td>31 = Min PWM Khz</td><td>52 = DB IGBT Amp</td><td>73 = Mtr Id Ref</td><td>92 = HH1 Scale</td><td>111 = HH2 Scale</td></tr><tr><td>13 = Inv High Vlt</td><td>32 = Max PWM Khz</td><td>53 = DB ohms</td><td>74 = HH1 Data Rev</td><td>93 = HH2 Data Rev</td><td></td></tr><tr><td>14 = Reserved</td><td>33 = Dfl PWM Khz</td><td>54 = DB E Jo/degC</td><td>75 = HH1 Dev Type</td><td>94 = HH2 Dev Type</td><td></td></tr><tr><td>15 = Fan/Pwr Cntl</td><td>34 = PWM Dead us</td><td>55 = DB EB C/Watt</td><td>76 = HH1 Serial #</td><td>95 = HH2 Serial #</td><td></td></tr><tr><td>16 = Temp Sensor</td><td>35 = Drive Frame</td><td>56 = DB B Jo/degC</td><td>77 = HH1 Test Date</td><td>96 = HH2 TestDate</td><td></td></tr><tr><td>17 = Phs AmpScale</td><td>36 = IGBTs per Pk</td><td>57 = DB BA C/Watt</td><td>78 = HH1 Vcn Code</td><td>97 = HH2 Vcn Code</td><td></td></tr><tr><td>18 = Gnd AmpScale</td><td>37 = GBT Rated V</td><td>60 = DB Ambt Tmax</td><td>79 = HH1 CrsCnclID</td><td>98 = HH2 CrsCnclID</td><td></td></tr></table> | 0 = Zero | 19 = Bus VltScale | 38 = IGBT Rated A | 61 = ConvT Type | 80 = HH1 P/B ID | 99 = HH2 P/B ID | 1 = Volt Class | 20 = Sml PS Watts | 39 = IGBT V Thres | 62 = DC Bus Induc | 81 = HH1 S/W ID | 100 = HH2 S/W ID | 2 = Assy Rev | 21 = Sml PS Min V | 40 = IGBT Slope R | 63 = AC Inp Induc | 82 = HH1 P/B Rev | 101 = HH2 P/B Rev | 3 = ASA S/N | 22 = Lrg PS Watts | 41 = IGBT Sw Engy | 64 = Precharg Res | 83 = HH1 S/W Rev | 102 = HH2 S/W Rev | 4 = Manuf Year | 23 = Lrg PS Min V | 44 = IGBT CS Tres | 65 = PrechThrm Tc | 84 = HH1 Extr Data | 103 = HH2 ExtrData | 5 = Manuf Month | 24 = Inv Rated Kw | 45 = IGBT CS Tc | 66 = Mtr NP Units | 85 = HH1 VoltIndx | 104 = HH2 VoltIndx | 6 = Manuf Day | 25 = Inv Rated V | 46 = Diode V Thrs | 67 = Mtr NP Power | 86 = HH1 SizelIndx | 105 = HH2 SizelIndx | 7 = Tst ProcStat | 26 = Inv Rated A | 47 = Diode SlopeR | 68 = Mtr NP Volts | 87 = HH1 Option | 106 = HH2 Option | 8 = Life PwrCycl | 27 = Inv 1min Amp | 48 = Diode JC Tr | 69 = Mtr NP Amps | 88 = HH1 HrdPrdct | 107 = HH2 HrdPrdct | 9 = Life Pwrup | 28 = inv 3sec Amp | 49 = Diode JC Tc | 70 = Mtr NP Freq | 89 = HH1 H/W Mdfy | 108 = HH2 H/W Mdfy | 10 = Life RunTime | 29 = SW OverC Amp | 50 = GBT Tjmax | 71 = Mtr NP RPM | 90 = HH1 1V/Amp | 109 = HH2 1V/Amp | 11 = Kw Accum | 30 = DC Bus Cap | 51 = HS Max DegC | 72 = Mtr IR Vdrop | 91 = HH1 2s/Amp | 110 = HH2 2s/Amp | 12 = Mw Hrs Accum | 31 = Min PWM Khz | 52 = DB IGBT Amp | 73 = Mtr Id Ref | 92 = HH1 Scale | 111 = HH2 Scale | 13 = Inv High Vlt | 32 = Max PWM Khz | 53 = DB ohms | 74 = HH1 Data Rev | 93 = HH2 Data Rev | | 14 = Reserved | 33 = Dfl PWM Khz | 54 = DB E Jo/degC | 75 = HH1 Dev Type | 94 = HH2 Dev Type | | 15 = Fan/Pwr Cntl | 34 = PWM Dead us | 55 = DB EB C/Watt | 76 = HH1 Serial # | 95 = HH2 Serial # | | 16 = Temp Sensor | 35 = Drive Frame | 56 = DB B Jo/degC | 77 = HH1 Test Date | 96 = HH2 TestDate | | 17 = Phs AmpScale | 36 = IGBTs per Pk | 57 = DB BA C/Watt | 78 = HH1 Vcn Code | 97 = HH2 Vcn Code | | 18 = Gnd AmpScale | 37 = GBT Rated V | 60 = DB Ambt Tmax | 79 = HH1 CrsCnclID | 98 = HH2 CrsCnclID | | | | | | | |
| 0 = Zero | 19 = Bus VltScale | 38 = IGBT Rated A | 61 = ConvT Type | 80 = HH1 P/B ID | 99 = HH2 P/B ID | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1 = Volt Class | 20 = Sml PS Watts | 39 = IGBT V Thres | 62 = DC Bus Induc | 81 = HH1 S/W ID | 100 = HH2 S/W ID | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 2 = Assy Rev | 21 = Sml PS Min V | 40 = IGBT Slope R | 63 = AC Inp Induc | 82 = HH1 P/B Rev | 101 = HH2 P/B Rev | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 3 = ASA S/N | 22 = Lrg PS Watts | 41 = IGBT Sw Engy | 64 = Precharg Res | 83 = HH1 S/W Rev | 102 = HH2 S/W Rev | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 4 = Manuf Year | 23 = Lrg PS Min V | 44 = IGBT CS Tres | 65 = PrechThrm Tc | 84 = HH1 Extr Data | 103 = HH2 ExtrData | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 5 = Manuf Month | 24 = Inv Rated Kw | 45 = IGBT CS Tc | 66 = Mtr NP Units | 85 = HH1 VoltIndx | 104 = HH2 VoltIndx | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 6 = Manuf Day | 25 = Inv Rated V | 46 = Diode V Thrs | 67 = Mtr NP Power | 86 = HH1 SizelIndx | 105 = HH2 SizelIndx | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 7 = Tst ProcStat | 26 = Inv Rated A | 47 = Diode SlopeR | 68 = Mtr NP Volts | 87 = HH1 Option | 106 = HH2 Option | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 8 = Life PwrCycl | 27 = Inv 1min Amp | 48 = Diode JC Tr | 69 = Mtr NP Amps | 88 = HH1 HrdPrdct | 107 = HH2 HrdPrdct | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 9 = Life Pwrup | 28 = inv 3sec Amp | 49 = Diode JC Tc | 70 = Mtr NP Freq | 89 = HH1 H/W Mdfy | 108 = HH2 H/W Mdfy | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 10 = Life RunTime | 29 = SW OverC Amp | 50 = GBT Tjmax | 71 = Mtr NP RPM | 90 = HH1 1V/Amp | 109 = HH2 1V/Amp | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 11 = Kw Accum | 30 = DC Bus Cap | 51 = HS Max DegC | 72 = Mtr IR Vdrop | 91 = HH1 2s/Amp | 110 = HH2 2s/Amp | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 12 = Mw Hrs Accum | 31 = Min PWM Khz | 52 = DB IGBT Amp | 73 = Mtr Id Ref | 92 = HH1 Scale | 111 = HH2 Scale | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 13 = Inv High Vlt | 32 = Max PWM Khz | 53 = DB ohms | 74 = HH1 Data Rev | 93 = HH2 Data Rev | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 14 = Reserved | 33 = Dfl PWM Khz | 54 = DB E Jo/degC | 75 = HH1 Dev Type | 94 = HH2 Dev Type | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 15 = Fan/Pwr Cntl | 34 = PWM Dead us | 55 = DB EB C/Watt | 76 = HH1 Serial # | 95 = HH2 Serial # | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 16 = Temp Sensor | 35 = Drive Frame | 56 = DB B Jo/degC | 77 = HH1 Test Date | 96 = HH2 TestDate | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 17 = Phs AmpScale | 36 = IGBTs per Pk | 57 = DB BA C/Watt | 78 = HH1 Vcn Code | 97 = HH2 Vcn Code | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 18 = Gnd AmpScale | 37 = GBT Rated V | 60 = DB Ambt Tmax | 79 = HH1 CrsCnclID | 98 = HH2 CrsCnclID | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 413 | Power EE TP Data Displays the data selected by Par 412 [Power EE TP Sel]. | Default: 0 Min/Max: -/+2200000000 | | | | RO | Real | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 414 | Brake/Bus Cnfg Configures the brake and bus operation of the drive. <ul style="list-style-type: none">Set bit 0 "Brake Enable" to enable the operation of the internal brake transistor.Set bit 1 "Brake Extern" to configure the brake to use an external resistor.Set bit 2 "Bus Ref High" to select the "high" voltage setting as the turn-on point for the Bus Voltage Regulator. With the "high" setting brake operation starts when bus voltage reaches the value of Par 415 [BusReg/Brake Ref], and Bus Voltage Regulator operation starts when bus voltage reaches the value of Par 415 [BusReg/Brake Ref] plus 4.5%. With the "low" setting, the bus regulator turns on first at the value set by Par 415 [BusReg/Brake Ref] and then the dynamic braking turns on when there are any transients above the value set in Par 415 [BusReg/Brake Ref].Set bit 3 "Bus Reg En" to enable the Bus Voltage Regulator. The output of the Bus Voltage Regulator is summed with Par 128 [Regen Power Lim] and fed into the Power Limit Calculator. It, in effect, reduces regenerative torque references when the bus voltage is too high. Notes: This parameter was changed to non-linkable and bits 5 and 6 were added for future use - not active for use with firmware version 3.01. Remove bits 5 and 6 for firmware version 4.001 - not used. <table><tr><td>Options</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Bus Reg En</td><td>Bus Ref High</td><td>Brake Extern</td><td>Brake Enable</td></tr><tr><td>Default</td><td>0</td><td>0</td><td>1</td><td>1</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>1</td><td>1</td><td>0</td><td>0</td></tr><tr><td>Bit</td><td>15</td><td>14</td><td>13</td><td>12</td><td>11</td><td>10</td><td>9</td><td>8</td><td>7</td><td>6</td><td>5</td><td>4</td><td>3</td><td>2</td><td>1</td><td>0</td><td>0</td></tr></table> <div>0 = False 1 = True</div> | Options | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | Bus Reg En | Bus Ref High | Brake Extern | Brake Enable | Default | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | Bit | 15 | 14 | 13 | 12 | 11 | 10 | 9 | 8 | 7 | 6 | 5 | 4 | 3 | 2 | 1 | 0 | 0 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Options | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | Bus Reg En | Bus Ref High | Brake Extern | Brake Enable | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Default | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Bit | 15 | 14 | 13 | 12 | 11 | 10 | 9 | 8 | 7 | 6 | 5 | 4 | 3 | 2 | 1 | 0 | 0 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 415 | BusReg/Brake Ref Sets the "turn-on" voltage for the bus regulator and brakes. Enter a percentage of the high voltage setting for the voltage class. For example, on a 400-480V drive, $111 \times \sqrt{2} \times 480 = \text{VDC}$ | Units: % Default: 111.0000 Min/Max: 110.5000/117.8000 | | | | RW | Real | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 416 | Brake PulseWatts Limits the power delivered to the external Dynamic Brake (DB) resistor for one second, without exceeding the rated element temperature. You may change the value of this parameter only if you have selected an external DB resistor (set bit 1 "Brake Extern" of Par 414 [Brake/Bus Cnfg]. If this rating is not available from the resistor vendor, you can approximate it with this equation: Par 416 [Brake PulseWatts] = 75,000 x Weight, where Weight equals the weight of resistor wire element in pounds (not the entire weight of the resistor). Another equation you can use is: Par 416 [Brake PulseWatts] = Time Constant x Brake Watts; where Time Constant equals the amount of time to reach 63% of its rated temperature while the maximum power is applied, and Brake Watts is the peak power rating of the resistor. Note: The maximum value was changed from 1000000.0000 to 10000000000.0000 for firmware version 3.01. | Units: Watt Default: 2000.0000 Min/Max: 1.0000/1000000000.0000 | | | | RW | Real | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

| No. | Name Description | Values | | Linkable | Read-Write | Data Type | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|---------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------|----------|------------|----------------|----------|----------|----------|----------|----------|----------|--------------|----------|--------------|-------------|--------------|-------------|---------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|-----|----|----|----|----|----|----|---|---|---|---|---|---|---|---|---|---|--|--|--|--|
| 417 | Brake Watts Sets the continuous rated power reference for the Dynamic Brake (DB). You may change the value of this parameter only if you have selected and external DB resistor (set bit 1 "Brake Extern" of Par 414 [Brake/Bus Cnfg]. Note: The maximum value was changed from 5000.0000 to 500000.0000 for firmware version 3.01. | Units: Watt Default: 100.0000 Min/Max: 0.0000/500000.0000 | | | RW | Real | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 418 | Brake TP Sel Enter or write a value to select the drive brake data displayed in Par 419 [Brake TP Data]. | Default: 0 = "Zero" Options: 0 = "Zero" 10 = "Data State" 1 = "Duty Cycle" 11 = "MC BrakeEnbl" 2 = "Power Actual" 12 = "1/rdb" 3 = "Max BodyTemp" 13 = "1/th_eb" 4 = "Max ElemTemp" 14 = "1/cb" 5 = "BodyTemp Act" 15 = "tamax" 6 = "ElemTemp Act" 16 = "1/th_ba" 7 = "BTmpTripStat" 17 = "1/cb" 8 = "ETmpTripStat" 18 = "DB IGBT Amp" 9 = "Int DB Ohms" | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 419 | Brake TP Data Displays the data selected by Par 418 [Brake TP Sel]. | Default: 0.0000 Min/Max: -/+2200000000.0000 | | | RO | Real | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 420 | Pwr Strct Mode Displays the power structure used in the drive. This is an identifier to the firmware for power structure control. Bit 0 "Lo Pwr Strct" = PowerFlex 700S Frame 1 to 6 Bit 1 "Hi Pwr Strct" = PowerFlex 700S above Frame 6 Bit 3 "Parallel Drv" = PowerFlex 700S Frame 12 Note: Bit 3 "Parallel Drv" was added for firmware version 3.01. <table><tr><td>Options</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Parallel Drv</td><td>PF 700L</td><td>Hi Pwr Strct</td><td>Lo PwrStrct</td></tr><tr><td>Default</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td></tr><tr><td>Bit</td><td>15</td><td>14</td><td>13</td><td>12</td><td>11</td><td>10</td><td>9</td><td>8</td><td>7</td><td>6</td><td>5</td><td>4</td><td>3</td><td>2</td><td>1</td><td>0</td></tr></table> 0 = False 1 = True | Options | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | Parallel Drv | PF 700L | Hi Pwr Strct | Lo PwrStrct | Default | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | Bit | 15 | 14 | 13 | 12 | 11 | 10 | 9 | 8 | 7 | 6 | 5 | 4 | 3 | 2 | 1 | 0 | | | | |
| Options | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | Parallel Drv | PF 700L | Hi Pwr Strct | Lo PwrStrct | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Default | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Bit | 15 | 14 | 13 | 12 | 11 | 10 | 9 | 8 | 7 | 6 | 5 | 4 | 3 | 2 | 1 | 0 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 421 | Iqs Integ Freq Sets the break frequency of the torque producing (q-axis) current regulator. This and Par 422 [Iqs Reg P Gain] determine the integral gain for the q-axis current regulator. Set by the autotune procedure. Do not change this value. | Units: R/S Default: 10 Min/Max: 0/32767 | | | RW | 16-bit Integer | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 422 | Iqs Reg P Gain Sets the proportional gain of the torque producing (q-axis) current regulator. Set by the autotune procedure. Do not change this value. | Default: 1.0 Min/Max: 0.0/100.0 Scale: x 10 | | | RW | 16-bit Integer | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 423 | Iqs Rate Limit Sets the limit of the rate of change for the torque producing (q-axis) current regulator. Do not change this parameter. Use Par 355 [Iq Rate Limited] to control the q-axis current rate limit. | Units: %/mS Default: 800.0 Min/Max: 0.0/800.0 Scale: x 10 | | | RW | 16-bit Integer | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 424 | Flux Ratio Ref Active only in the Field Oriented Control (FOC) 2 motor control mode (when Par 485 [Motor Ctrl Mode] equals 2 - FVC 2). Provides a scaling factor for the flux producing (d-axis) current reference. <ul style="list-style-type: none">When active (Par 511 [FVC2 Mode Config], bit 28 "FlxRatRef Use" is set), Flux Producing (d-axis) Current Reference = Par 488 [Flux Current] x Par 424 [Flux Ratio Ref].When inactive (Par 511 [FVC2 Mode Config], bit 28 "FlxRatRef Use" is cleared) Flux Producing (d-axis) Current Reference = Par 488 [Flux Current] below base speed and Flux Producing (d-axis) Current Reference = Par 488 [Flux Current] x motor base speed/motor speed above base speed. | Units: % Default: 99.99 Min/Max: 12.50/399.99 Scale: 100 = 32767 | | | RW | 16-bit Integer | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 425 | Flux Rate Limit Sets the limit for the maximum rate of change for flux producing (d-axis) current. | Units: %/mS Default: 1.0 Min/Max: 0.0/195.3 Scale: x 10 | | | RW | 16-bit Integer | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 426 | Flux Satur Coef This represents the amount of flux current required to compensate for the flux saturation effect of the motor. Active only for FOC 2 motor control mode. | Units: %/ Default: 0.0 Min/Max: 0.0/51.3 Scale: x 10 | | | RW | 16-bit Integer | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 427 | PM Mtr CEMF Comp Provides CEMF compensation for the torque producing (q-axis) current in the permanent magnet motor mode. | Units: % Default: 0 Min/Max: 0/100 | | | RW | 16-bit Integer | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 428 | IReg IGain Fctr Adjustment for current regulator integral frequency factor (gain). | Default: 1 Min/Max: 1/20 | | | RW | 16-bit Integer | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |


| No. | Name Description | Values | | Linkable | Read-Write | Data Type |
|-----|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------|--|----------|------------|----------------|
| 429 | Ids Integ Freq Sets the break frequency of the flux producing (d-axis) current regulator. This and Par 430 [Ids Reg P Gain] determine the integral gain for the d-axis current regulator. Set by the autotune procedure. Do not change this value. | Units: R/S Default: 10 Min/Max: 0/32767 | | | RW | 16-bit Integer |
| 430 | Ids Reg P Gain Sets the proportional gain of the flux producing (d-axis) current regulator. Set by the autotune procedure. Do not change this value. | Default: 1.0 Min/Max: 0.0/100.0 Scale: x 10 | | | RW | 16-bit Integer |
| 431 | Test Current Ref Sets the current reference used for Motor Control (MC) Test Mode. | Units: % Default: 50.0 Min/Max: 0.0/799.9 Scale: x 10 | | | RW | 16-bit Integer |
| 432 | Test Freq Ref Sets the frequency reference used for Motor Control (MC) Test Mode. Note: The default value was changed for firmware version 2.03. | Units: % Default: 1.0 Min/Max: -/+799.9 Scale: x 10 | | | RW | 16-bit Integer |
| 433 | Test Freq Rate Sets the rate of change of frequency reference used for Motor Control (MC) Test Mode. | Units: % /S Default: 5.0 Min/Max: 0.0/1000.0 Scale: x 10 | | | RW | 16-bit Integer |
| 434 | Mtr Vds Base Displays the motor flux producing (d-axis) voltage command when running at nameplate motor speed and load. This value is determined during the auto-tune procedure. Do not change this value. Used only in FOC modes. | Default: 0 Min/Max: -8192/0 | | | RO | 16-bit Integer |
| 435 | Mtr Vqs Base Displays the motor torque producing (q-axis) voltage command when running at nameplate motor speed and load. This value is determined during the auto-tune procedure. Do not change this value. Used only in FOC modes. | Default: 0 Min/Max: 0/8192 | | | RO | 16-bit Integer |
| 437 | Vqs Max Displays the maximum torque producing (q-axis) voltage allowed on the motor. Adaptation is disabled below this voltage. This value is determined during the auto-tune procedure. Do not change this value. Used only in FOC modes. | Default: 7971 Min/Max: 0/32767 | | | RW | 16-bit Integer |
| 438 | Vds Max Displays the maximum flux producing (d-axis) voltage allowed on the motor. Adaptation is disabled below this voltage. This value is determined during the auto-tune procedure. Do not change this value. Used only in FOC modes. | Default: 5793 Min/Max: 0/32767 | | | RW | 16-bit Integer |
| 439 | Vqs Min Displays the minimum torque producing (q-axis) voltage required for motor control adaptation. This value is determined during the auto-tune procedure. Do not change this value. Used only in FOC modes. | Default: 246 Min/Max: -/+32767 | | | RW | 16-bit Integer |
| 440 | Vds Min Displays the minimum flux producing (d-axis) voltage required for motor control adaptation. Adaptation is disabled below this voltage. This value is determined during the auto-tune procedure. Do not change this value. | Default: 246 Min/Max: -/+32767 | | | RW | 16-bit Integer |
| 441 | Vds Fdbk Filt Displays measured filtered motor flux producing (d-axis) voltage. | Default: 0 Min/Max: -/+32767 | | | RO | 16-bit Integer |
| 442 | Vqs Fdbk Filt Displays measured filtered motor torque producing (q-axis) voltage. | Default: 0 Min/Max: -/+32767 | | | RO | 16-bit Integer |
| 443 | Flux Reg P Gain1 Sets the Proportional (P) gain for the flux regulator. Do not change this value. | Default: 150 Min/Max: 0/32767 | | | RW | 16-bit Integer |
| 444 | Flux Reg I Gain Sets the Integral (I) gain for the flux regulator. Do not change this value. | Default: 350 Min/Max: 0/32767 | | | RW | 16-bit Integer |
| 445 | Slip Gain Max Displays the maximum slip frequency allowed in the motor control. The scaling is in hertz x 256. This value is determined during the auto-tune procedure. Do not change this value. | Units: % Default: 300 Min/Max: 100/10000 | | | RW | 16-bit Integer |
| 446 | Slip Gain Min Displays the minimum slip frequency allowed in the motor control. The scaling is in hertz x 256. This value is determined during the auto-tune procedure. Do not change this value. | Units: % Default: 50 Min/Max: 0/100 | | | RW | 16-bit Integer |
| 447 | Slip Reg P Gain Sets the Proportional (P) gain for the slip regulator. Do not change this value. | Default: 35 Min/Max: 0/32767 | | | RW | 16-bit Integer |
| 448 | Slip Reg I Gain Sets the Integral (I) gain for the slip regulator. Do not change this value. | Default: 100 Min/Max: 0/32767 | | | RW | 16-bit Integer |
| 449 | SrLss FreqReg Ki Sets the integral gain of the Frequency Regulator, which estimates motor speed when sensorless feedback is selected. Do not change this value. | Default: 250 Min/Max: 0/32767 | | | RW | 16-bit Integer |
| 450 | SrLss FreqReg Kp Sets the proportional gain of the Frequency Regulator, which estimates motor speed when sensorless feedback is selected. Do not change this value. | Default: 350 Min/Max: 0/32767 | | | RW | 16-bit Integer |










| No. | Name Description | Values | | | Linkable | Read-Write | Data Type | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
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| 453 | Iu Offset Sets the current offset correction for the phase U current. This value is set automatically when the drive is not running and Motor Control (MC) is not faulted. Do not change this value. | Default: 0 Min/Max: -/+32767 | | | | RW | 16-bit Integer | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 454 | Iw Offset Sets the current offset correction for the flux producing (d-axis) current regulator. This value is set automatically when the drive is not running and Motor Control (MC) is not faulted. Do not change this value. | Default: 0 Min/Max: -/+32767 | | | | RW | 16-bit Integer | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 456 | MC Build Number Displays the build number of the drive's Motor Control (MC) software. | Default: 0 Min/Max: 0/65535 | | | | RO | 16-bit Integer | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 457 | MC Firmware Rev Displays the major and minor revision levels of the drive's Motor Control (MC) software. Changed all values to three decimal places for firmware version 4.001. | Default: 0.000 Min/Max: 0.000/655.350 Scale: x 10 | | | | RO | 16-bit Integer | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 459 | IdsCompCoeff Mot Defines the flux producing current (Ids) command compensation coefficient used during motoring. When this parameter is set to 1024 the amount of compensation, which is proportional to torque producing current (Iqs) command, is 100% of the rated flux current at 1 pu of Iqs command when the torque producing voltage (Vqs) regulator is off and Par 510 [FVC Mode Config], bit 7 "Ids Comp En" = "1". No Ids command compensation will be applied when Par 510 [FVC Mode Config], bit 7 = "0". Notes: Refer to "Ids Compensation Coefficient Set Up" in the <i>PowerFlex 700S with Phase II Control Reference Manual</i> , publication PFLEX-RM003..., for more information. This parameter was added for firmware version 4.001. | Default: 0 Min/Max: +/-32767 | | | | RW | 16-bit Integer | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 460 | IdsCompCoeff Reg Defines the flux producing current (Ids) command compensation coefficient used during regeneration. When this parameter is set to 1024 the amount of compensation, which is proportional to torque producing current (Iqs) command, is 100% of the rated flux current at 1 pu of Iqs command when the Vqs regulator is off and Par 510 [FVC Mode Config], bit 7 "Ids Comp En" = "1". No Ids command compensation will be applied when Par 510 [FVC Mode Config], bit 7 = "0". Notes: Refer to "Ids Compensation Coefficient Set Up" in the <i>PowerFlex 700S with Phase II Control Reference Manual</i> , publication PFLEX-RM003..., for more information. This parameter was added for firmware version 4.001. | Default: 0 Min/Max: +/-32767 | | | | RW | 16-bit Integer | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 461 | SlipReg Off Iqs Defines the torque producing current (Iqs) reference level below which the slip regulator turns off, when the slip regulator turn off point is defined as ((Par 461 / 10) + 5) % of the rated Iqs reference. The slip regulator turn on point is defined as ((Par 461 / 10) + 10) % of the rated Iqs reference with the condition of the Vqs regulator is turned on. Note: This parameter was added for firmware version 4.001. | Default: 200 Min/Max: +/-32767 | | | | RW | 16-bit Integer | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 462 | VqsReg Off Freq Defines the output frequency level below which the Vqs regulator turns off, when the Vqs regulator turn off point is defined as (Par 462 / 10) % of the rated motor frequency. The Vqs regulator turn on point is defined as ((Par 462 / 10) + 2) % of the rated motor frequency. Note: This parameter was added for firmware version 4.001. | Default: 150 Min/Max: 0/1000 | | | | RW | 16-bit Integer | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 463 | MC Diag Error 1 Displays the first diagnostic error encountered by the Motor Control (MC). Errors appear in this parameter in the order in which they occurred. Note: Bits 7 & 8 have been changed to "Ground Fault" for firmware version 2.04. | <table><tr><th>Options</th><th>Reserved</th><th>Reserved</th><th>Reserved</th><th>Reserved</th><th>Reserved</th><th>Reserved</th><th>Reserved</th><th>Reserved</th><th>Reserved</th><th>Reserved</th><th>Reserved</th><th>Reserved</th><th>Neg Parametr</th><th>Not Rotating</th><th>Not Rotating</th><th>Reserved</th><th>Reserved</th><th>WP-VNOn-Wcur</th><th>WP-UNOn-U,W</th><th>VP-WNOn-Wcur</th><th>VP-UNOn-Ucur</th><th>UP-WNOn-U,W</th><th>UP-VNOn-Ucur</th><th>Ground Fault</th><th>Ground Fault</th><th>UP/VPdevShrt</th><th>UP/VPdevShrt</th><th>VP/VPdevShrt</th><th>UN,VNdevShrt</th><th>UN,VNdevShrt</th><th>VN,VNdevShrt</th><th>Vbus Range</th></tr><tr><td>Default</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td></tr><tr><td>Bit</td><td>31</td><td>30</td><td>29</td><td>28</td><td>27</td><td>26</td><td>25</td><td>24</td><td>23</td><td>22</td><td>21</td><td>20</td><td>19</td><td>18</td><td>17</td><td>16</td><td>15</td><td>14</td><td>13</td><td>12</td><td>11</td><td>10</td><td>9</td><td>8</td><td>7</td><td>6</td><td>5</td><td>4</td><td>3</td><td>2</td><td>1</td><td>0</td></tr></table> | | | | | | Options | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | Neg Parametr | Not Rotating | Not Rotating | Reserved | Reserved | WP-VNOn-Wcur | WP-UNOn-U,W | VP-WNOn-Wcur | VP-UNOn-Ucur | UP-WNOn-U,W | UP-VNOn-Ucur | Ground Fault | Ground Fault | UP/VPdevShrt | UP/VPdevShrt | VP/VPdevShrt | UN,VNdevShrt | UN,VNdevShrt | VN,VNdevShrt | Vbus Range | Default | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | Bit | 31 | 30 | 29 | 28 | 27 | 26 | 25 | 24 | 23 | 22 | 21 | 20 | 19 | 18 | 17 | 16 | 15 | 14 | 13 | 12 | 11 | 10 | 9 | 8 | 7 | 6 | 5 | 4 | 3 | 2 | 1 | 0 | 0 = False 1 = True |
| Options | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | Neg Parametr | Not Rotating | Not Rotating | Reserved | Reserved | WP-VNOn-Wcur | WP-UNOn-U,W | VP-WNOn-Wcur | VP-UNOn-Ucur | UP-WNOn-U,W | UP-VNOn-Ucur | Ground Fault | Ground Fault | UP/VPdevShrt | UP/VPdevShrt | VP/VPdevShrt | UN,VNdevShrt | UN,VNdevShrt | VN,VNdevShrt | Vbus Range | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Default | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Bit | 31 | 30 | 29 | 28 | 27 | 26 | 25 | 24 | 23 | 22 | 21 | 20 | 19 | 18 | 17 | 16 | 15 | 14 | 13 | 12 | 11 | 10 | 9 | 8 | 7 | 6 | 5 | 4 | 3 | 2 | 1 | 0 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 464 | MC Diag Error 2 Displays the second diagnostic error encountered by the Motor Control (MC). Errors appear in this parameter in the order in which they occurred. | <table><tr><th>Options</th><th>Reserved</th><th>Reserved</th><th>Reserved</th><th>Reserved</th><th>Reserved</th><th>Reserved</th><th>Reserved</th><th>Reserved</th><th>Reserved</th><th>Reserved</th><th>Reserved</th><th>Reserved</th><th>Reserved</th><th>Negative Wr</th><th>Reserved</th><th>Reserved</th><th>WP-VNOn-Vwv</th><th>WPUN-Vuv,Vwv</th><th>VP-WNOn-Vwv</th><th>VP-UNOn-Vuv</th><th>UPWN-Vuv,Vwv</th><th>UP-VNOn-Vuv</th><th>Reserved</th><th>Reserved</th><th>Reserved</th><th>Reserved</th><th>Reserved</th><th>Reserved</th><th>Reserved</th><th>SensOfstRnge</th></tr><tr><td>Default</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td></tr><tr><td>Bit</td><td>31</td><td>30</td><td>29</td><td>28</td><td>27</td><td>26</td><td>25</td><td>24</td><td>23</td><td>22</td><td>21</td><td>20</td><td>19</td><td>18</td><td>17</td><td>16</td><td>15</td><td>14</td><td>13</td><td>12</td><td>11</td><td>10</td><td>9</td><td>8</td><td>7</td><td>6</td><td>5</td><td>4</td><td>3</td><td>2</td><td>1</td><td>0</td></tr></table> | | | | | | Options | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | Negative Wr | Reserved | Reserved | WP-VNOn-Vwv | WPUN-Vuv,Vwv | VP-WNOn-Vwv | VP-UNOn-Vuv | UPWN-Vuv,Vwv | UP-VNOn-Vuv | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | SensOfstRnge | Default | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | Bit | 31 | 30 | 29 | 28 | 27 | 26 | 25 | 24 | 23 | 22 | 21 | 20 | 19 | 18 | 17 | 16 | 15 | 14 | 13 | 12 | 11 | 10 | 9 | 8 | 7 | 6 | 5 | 4 | 3 | 2 | 1 | 0 | 0 = False 1 = True | | |
| Options | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | Negative Wr | Reserved | Reserved | WP-VNOn-Vwv | WPUN-Vuv,Vwv | VP-WNOn-Vwv | VP-UNOn-Vuv | UPWN-Vuv,Vwv | UP-VNOn-Vuv | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | SensOfstRnge | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Default | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Bit | 31 | 30 | 29 | 28 | 27 | 26 | 25 | 24 | 23 | 22 | 21 | 20 | 19 | 18 | 17 | 16 | 15 | 14 | 13 | 12 | 11 | 10 | 9 | 8 | 7 | 6 | 5 | 4 | 3 | 2 | 1 | 0 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |


| No. | Name Description | Values | | | | Linkable | Read-Write | Data Type |
|-----|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------|--------------------|--------------------|--------------------|--------------------|------------|-----------|
| 466 | MC TP1 Select Enter a value to select Motor Control (MC) data displayed in Par 467 [MC TP1 Value] and Par 468 [MC TP1 Bit]. Par 467 [MC TP1 Value] and Par 468 [MC TP1 Bit] are diagnostic tools you can use to view internal drive parameters. The default value is option 0 "MulqsRef2". Note: Options 209 - 212 were added for firmware version 2.04. Options 213 - 254 were added for firmware version 3.01. Changed the following selections for firmware 4.001: 84, 86, 87, 88, 89, 90, 91, 92, 95, 97, 98, 99, 103, 104, 105, 106, 108, 109, 110, 111, 163, 164, 165, 174, 175, 176, 177, 178, 179, 181, 182, 183, 222, 223, 224, 225, 226, 227, 228, 229, 230, 231, 232, 233, 234, 236, 237, 253. Options: | | | | | | | |
| | 0 = MulqsRef2 | 43 = FluxRatio4 | 86 = SlipGainRate | 129 = RWVvOut | 172 = VqsComp | 215 = CurrSnsChck1 | | |
| | 1 = SlipRatio | 44 = MuFlxRtioRef | 87 = FiltSlipGain | 130 = RWVvOut | 173 = S4096 2.5V | 216 = CurrSnsChck3 | | |
| | 2 = Ws | 45 = RcpFlxRatio1 | 88 = SlipScale | 131 = RWuErr | 174 = FreqAdjustFS | 217 = CurrSnsChck5 | | |
| | 3 = WrEst2 | 46 = MulfluxRef | 89 = SlipSclShift | 132 = RWvErr | 175 = Reserved | 218 = FrameSize | | |
| | 4 = We | 47 = MultestRef | 90 = VdsError | 133 = RWwErr | 176 = FreqIntMonFB | 219 = Reserved | | |
| | 5 = VdsCmd | 48 = MotVntc | 91 = MotorRegen | 134 = RWVuOut2 | 177 = MtrCntrlSel | 220 = Reserved | | |
| | 6 = VqsCmd | 49 = BaseSlip | 92 = VqsSlwRtCLim | 135 = RWVvOut2 | 178 = WeMon | 221 = Reserved | | |
| | 7 = VuCmd1 | 50 = VbusFdbk2 | 93 = MotorVlts | 136 = RWVwOut2 | 179 = Reserved | 222 = PowerMon | | |
| | 8 = VvCmd1 | 51 = VdsFdbk2 | 94 = BusUtil | 137 = RWPoSState | 180 = IqsCmd2 | 223 = RawlwFdbk2 | | |
| | 9 = VwCmd1 | 52 = VqsFdbk2 | 95 = IdsCompMon | 138 = RWNegState | 181 = Reserved | 224 = VqsFbFltrCom | | |
| | 10 = IuFdbk | 53 = VdsSpdVltFlt | 96 = IqsLimit | 139 = BusDropVolts | 182 = Reserved | 225 = VqsErrorComm | | |
| | 11 = IwFdbk | 54 = WrEst1 | 97 = VqsSlwRtCnt | 140 = RecoverVolts | 183 = Reserved | 226 = ReconswFreq | | |
| | 12 = IdsFdbk | 55 = MuTestFrqRef | 98 = VqsErrMon | 141 = DbDuty | 184 = VLmtVqsRef | 227 = ReconAngleAc | | |
| | 13 = IqsFdbk | 56 = TestFrqRef | 99 = VqsNoErrCnt | 142 = VdsFdbkFltr | 185 = VRefVqsRefNm | 228 = VsCmdAngleVf | | |
| | 14 = VdsFdbk | 57 = FluxFltrN_1 | 100 = VqsIdsCmd | 143 = VqsFdbkFltr | 186 = VRefRslqsnm | 229 = ReconFreqInt | | |
| | 15 = VuvFdbk | 58 = PrchgDlayCtr | 101 = VqsMaxMotor | 144 = VbusFdbkFltr | 187 = VRefVqsSpdVN | 230 = SpeedRef | | |
| | 16 = VvwFdbk | 59 = PrchTimOutCr | 102 = VqsMaxVbus | 145 = VbusMemory | 188 = EconoVltGn | 231 = CurFbkldsFbk | | |
| | 17 = VqsFdbk | 60 = PrchPilotCtr | 103 = FreqMinFB | 146 = VpEnc0VelFbk | 189 = F Output Fre | 232 = CurFbkldsFbk | | |
| | 18 = IdsCmd | 61 = TrqEnableCtr | 104 = FreqMaxFB | 147 = VpEnc1VelFbk | 190 = TrqCreflqsCm | 233 = VqsThetaEst | | |
| | 19 = IqsRatio | 62 = MuTscan1 | 105 = IdsCmdFilter | 148 = VPOpt0VelFbk | 191 = Snk Wr | 234 = VdsThetaEst | | |
| | 20 = MulqsRef | 63 = ErStatFromCp | 106 = DelFreqIntFB | 149 = VPOpt1VelFbk | 192 = SrLssWrAve | 235 = RecnSwitch | | |
| | 21 = IqsCmd | 64 = FlxCurRteOut | 107 = VqsError | 150 = BitSelect1 | 193 = CurFbkldsFbk | 236 = VqsFbTransf | | |
| | 22 = We2 | 65 = ThetaE | 108 = SlipBrkErrFB | 151 = BitSelect2 | 194 = ACRIqsErr | 237 = VdsFbTransf | | |
| | 23 = VuTd | 66 = SinThetaE1 | 109 = FastBrkOnFB | 152 = SrLssWeEst2 | 195 = CrefslqdsCmd | 238 = BusLimitVBER | | |
| | 24 = VvTd | 67 = SinThetaE2 | 110 = FreqOutput | 153 = MulqsRef2 | 196 = CurFbkldsFbk | 239 = ParDecelRtMC | | |
| | 25 = VwTd | 68 = SinThetaE3 | 111 = AbsFreqOut | 154 = EstThetaByMV | 197 = VqsCmd700B | 240 = ACRIqsRef | | |
| | 26 = VuCmd2 | 69 = SinThetaE4 | 112 = TestMark70 | 155 = ETVdsFbkA | 198 = VdsCmc700B | 241 = ACRIqsCmd | | |
| | 27 = VvCmd2 | 70 = SinThetaE5 | 113 = TestMark71 | 156 = ETVqsFbkA | 199 = VqsRefNom | 242 = IqsCmdFltr | | |
| | 28 = VwCmd2 | 71 = SinThetaE6 | 114 = TestMark72 | 157 = ETVdsFbkS | 200 = VqsRslqsnm | 243 = ISpdCmd | | |
| | 29 = Kpwm | 72 = ThetaEcor | 115 = TestMark73 | 158 = ETVqsFbkS | 201 = VqsSpdVltNom | 244 = AccDecRate | | |
| | 30 = Vds_cemf | 73 = SinThtaEcor1 | 116 = TestMark74 | 159 = ETAtanVqVd | 202 = VltLmtVqsRef | 245 = RecThetaEx4 | | |
| | 31 = Vqs_cemf | 74 = SinThtaEcor2 | 117 = TestMark75 | 160 = ETByMtrVDfr | 203 = IdsFbkDeriv | 246 = RecVqsFdbk | | |
| | 32 = VdsCmd2 | 75 = SinThtaEcor3 | 118 = TestMark76 | 161 = VelRef2 | 204 = VdsRefNom | 247 = RecVdsFdbk | | |
| | 33 = VqsCmd2 | 76 = SinThtaEcor4 | 119 = TestMark76 | 162 = VelOutput | 205 = VdsRslqsnm | 248 = VdeFilter | | |
| | 34 = IdsIntegral | 77 = MulRef2B | 120 = TestMark78 | 163 = Reserved | 206 = VdsSpdVltNom | 249 = VqsFdbkTrans | | |
| | 35 = IqsIntegral | 78 = SpdFdbk | 121 = TestMark79 | 164 = FrameSize | 207 = VltLmtVdsRef | 250 = VdsFdbkTrans | | |
| | 36 = DcBus | 79 = SpdIntegral | 122 = TestMark7A | 165 = VdTargetMon | 208 = IdsFbkDeriv | 251 = Excitation | | |
| | 37 = AGnd | 80 = SpdPrportnal | 123 = TestMark7B | 166 = ThetaELiner | 209 = VuvFbkOffset | 252 = ExciteStatus | | |
| | 38 = Wr2 | 81 = SpdPI | 124 = TestMark7C | 167 = PprCntDfcOt | 210 = VvwFbkOffset | 253 = CommldsCount | | |
| | 39 = FluxRatio1 | 82 = SpdRef | 125 = TestMark7D | 168 = PprCntDfcTh | 211 = IuFbkOffset | 254 = ThetaEsample | | |
| | 40 = VbusFdbk | 83 = SlipGainEst | 126 = TestMark7E | 169 = LinearPprCnt | 212 = IwFbkOffset | 255 = Reserved | | |
| | 41 = FluxRatio2 | 84 = LatchSlipGin | 127 = TestMark7F | 170 = ActiveFdbk | 213 = KSlipNP | | | |
| | 42 = FluxRatio3 | 85 = Ws2 | 128 = RWVuOut | 171 = VdsComp | 214 = IUnbalanceSt | | | |


| No. | Name Description | Values | | Linkable | Read-Write | Data Type |
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| 467 | MC TP1 Value Displays the data selected by Par 466 [MC TP1 Select]. This display should only be used if the selected value is integer data. This parameter is a diagnostic tool you can use to view internal drive parameters. | Default: 0 Min/Max: -/+2147483648 | | | RO | 32-bit Integer |
| 468 | MC TP1 Bit Displays the data selected by Par 466 [MC TP1 Select]. This display should only be used if the selected value is bit-enumerated data. Par 468 [MC TP1 Bit] is a diagnostic tool you can use to view internal drive parameters. | Default: 00000000000000000000000000000000 Min: 00000000000000000000000000000000 Max: 1111111111111111111111111111111111 | | | RO | 32-bit Boolean |
| 469 | FVC CEMF Comp Displays the current regulator feedforward compensation. Do not change this value. | Units: % Default: 0 Min/Max: 0/100 | | | RW | 16-bit Integer |
| 470 | Flux Reg P Gain2 Displays the additional proportional gain used at the start of Bus voltage limited field weakening. Do not change this value. | Default: 1000 Min/Max: 0/32767 | | | RW | 16-bit Integer |
| 471 | Estimated Torque Displays the calculated motor shaft torque. Note: This parameter was added for firmware version 2.03. | Default: 0.0 Min/Max: +/-8.0 | | | RO | Real |
| 472 |  PreCharge Delay Adjusts the delay between the time all other precharge conditions have been met and the time the drive leaves the precharge state. Can be used to control the sequence of precharge completion in a drive system. The maximum value of this parameter is calculated as follows: Par 472 [PreCharge Delay] = Par 410 [PreChrg TimeOut] - 1.0 second. | Units: Sec Default: 2.0 Min/Max: 0.0/Calculated | | | RW | 16-bit Integer |


| No. | Name Description | Values | | Linkable | Read-Write | Data Type |
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| 473 | MC TP2 Select Enter a value to select Motor Control (MC) data displayed in Par 474 [MC TP2 Value] and Par 468 [MC TP1 Bit]. Par 474 [MC TP2 Value], and Par 468 [MC TP1 Bit] are diagnostic tools you can use to view internal drive parameters. This parameter should not be changed by the user. The default value is option 0 "MulqsRef2". Note: This parameter was added for firmware version 2.03. Options: 0 = MulqsRef2 43 = FluxRatio4 86 = SlipGain 129 = RWVvOut 172 = VqsComp 1 = SlipRatio 44 = MuFlxRtioRef 87 = SlipGainFltr 130 = RWVwOut 173 = S4096 2.5V 2 = Ws 45 = RcpFlxRatio1 88 = SlipVdsCmd 131 = RWuErr 174 = IqsLimFlux 3 = WrEst2 46 = MulfluxRef 89 = SlpVdsCmdFlt 132 = RWvErr 175 = IqsLimSlip 4 = We 47 = MultestRef 90 = VdsLastError 133 = RWwErr 176 = StatorCLimVp 5 = VdsCmd 48 = MotVntc 91 = VdsPrportnal 134 = RWVuOut2 177 = Torque Err 6 = VqsCmd 49 = BaseSlip 92 = VdsIntMnitor 135 = RWVvOut2 178 = Torque Prop 7 = VuCmd1 50 = VbusFdbk2 93 = MotorVlts 136 = RWVwOut2 179 = Torque Int 8 = VvCmd1 51 = VdsFdbk2 94 = BusUtil 137 = RWPosState 180 = IqsCmd2 9 = VwCmd1 52 = VqsFdbk2 95 = FieldInitTm 138 = RWNegState 181 = Torque Cmd 10 = IuFdbk 53 = VdsSpdVltFlt 96 = IqsLimit 139 = BusDropVolts 182 = Torque PI 11 = IwFdbk 54 = WrEst1 97 = VqsCmdMotor 140 = RecoverVolts 183 = RotorFluxEst 12 = IdsFdbk 55 = MuTestFrqRef 98 = We2FieldWeak 141 = DbDuty 184 = VLmtVqsRef 13 = IqsFdbk 56 = TestFrqRef 99 = VqsFieldWkBase 142 = VdsFdbkFltr 185 = VRefVqsRefNm 14 = VdsFdbk 57 = FluxFltrN_1 100 = VqsIdsCmd 143 = VqsFdbkFltr 186 = VRefRslqsNm 15 = VuvFdbk 58 = PrchgDlDayCtr 101 = VqsMaxMotor 144 = VbusFdbkFltr 187 = VRefVqsSpdVN 16 = VvwFdbk 59 = PrchTimOutCr 102 = VqsMaxVbus 145 = VbusMemory 188 = EconoVoltGn 17 = VqsFdbk 60 = PrchPilotCtr 103 = CalcPUMtrFlx 146 = VpEnc0VelFbk 189 = F Output Fre 18 = IdsCmd 61 = TrqEnableCtr 104 = FldWkInitTim 147 = VpEnc1VelFbk 190 = TrqCrefflqsCm 19 = IqsRatio 62 = MuTscan1 105 = FluxIdsFfFlt 148 = VPOpt0VelFbk 191 = Snk Wr 20 = MulqsRef 63 = ErStatFromCp 106 = FlxVqsCmdFlt 149 = VPOpt1VelFbk 192 = SrLssWrAve 21 = IqsCmd 64 = FlxCurRteOut 107 = VqsError 150 = BitSelect1 193 = CurFbkIqsFbk 22 = We2 65 = ThetaE 108 = VqsFluxPI 151 = BitSelect2 194 = ACRIqsErr 23 = VuTd 66 = SinThetaE1 109 = VqsIntegral 152 = SrLssWeEst2 195 = CrefwqldsCmd 24 = VvTd 67 = SinThetaE2 110 = VqsPrportl1 153 = MulqsRef2 196 = CurFbkIdsFbk 25 = VwTd 68 = SinThetaE3 111 = VqsPrportnl2 154 = EstThetaByMV 197 = VqsCmd700B 26 = VuCmd2 69 = SinThetaE4 112 = TestMark70 155 = ETVdsFbkA 198 = VdsCmc700B 27 = VvCmd2 70 = SinThetaE5 113 = TestMark71 156 = ETVqsFbkA 199 = VqsRefNom 28 = VwCmd2 71 = SinThetaE6 114 = TestMark72 157 = ETVdsFbkS 200 = VqsRslqsNom 29 = Kpwm 72 = ThetaEcor 115 = TestMark73 158 = ETVqsFbkS 201 = VqsSpdVltNom 30 = Vds_cemf 73 = SinThtaEcor1 116 = TestMark74 159 = ETAtanVqVd 202 = VltLmtVqsRef 31 = Vqs_cemf 74 = SinThtaEcor2 117 = TestMark75 160 = ETByMtrVDfr 203 = IdsFbkDeriv 32 = VdsCmd2 75 = SinThtaEcor3 118 = TestMark76 161 = VelRef2 204 = VdsRefNom 33 = VqsCmd2 76 = SinThtaEcor4 119 = TestMark77 162 = VelOutput 205 = VdsRsldsNom 34 = IdsIntegral 77 = MulRef2B 120 = TestMark78 163 = Torque Est 206 = VdsSpdVltNom 35 = IqsIntegral 78 = SpdFdbk 121 = TestMark79 164 = TrqEst Fltr 207 = VltLmtVdsRef 36 = DcBus 79 = SpdIntegral 122 = TestMark7A 165 = PowerCalc 208 = IdsFbkDeriv 37 = AGnd 80 = SpdPrportnal 123 = TestMark7B 166 = ThetaELiner 209 = VuvFbkOffset 38 = Wr2 81 = SpdPI 124 = TestMark7C 167 = PprCntDfcOt 210 = VvwFbkOffset 39 = FluxRatio1 82 = SpdRef 125 = TestMark7D 168 = PprCntDfcTh 211 = IwFdbkOffset 40 = VbusFdbk 83 = SlipGainEst 126 = TestMark7E 169 = LinearPprCnt 212 = IwFdbkOffset 41 = FluxRatio2 84 = SlipGainFf 127 = TestMark7F 170 = ActiveFdbk 213 - 255 = Reserved 42 = FluxRatio3 85 = Ws2 128 = RWVuOut 171 = VdsComp | | | | | |
| 474 | MC TP2 Value Displays the data selected by Par 473 [MC TP2 Select]. This display should only be used if the selected value is integer data. This parameter is a diagnostic tool you can use to view internal drive parameters. This parameter should not be changed by the user. Note: This parameter was added for firmware version 2.03. | Default: 0.0 Min/Max: +/- 2147483648 | | RO | 32-bit Integer | |


| No. | Name Description | Values | | Linkable | Read-Write | Data Type |
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| 475 | MC FaultTPSelect Enter or write a value to select the Motor Control (MC) Fault Data displayed in Par 476 [MC FaultTP Value]. This parameter should not be changed by the user. Notes: This parameter was added for firmware version 2.03. The value for option 67 was changed from "HH GateShort" to "MCStatus1" for firmware version 2.04. Values 68 - 76 were added for firmware version 3.01. Options: 0 = IqsRef2 14 = DcBus 29 = DbDuty 43 = RotorFluxEst 57 = VbusDrop 71 = HH OverLoad 1 = Ws 15 = VbusFdbk 30 = VelFdbkEnc0 44 = Ws2 58 = VdsMax 72 = HH Precharge 2 = We 16 = VbusFdbkFiltr 31 = VelFdbkEnc1 45 = BusDropVolts 59 = VbusLow 73 = HH Fan Alarm 3 = We2 17 = VbusMemory 32 = VdsCmd2 46 = RecoverVolts 60 = VbusRising 74 = HH BusComm 4 = VdsCmd 18 = Kpwm 33 = VelFdbkOpt1 47 = TestDtoA0 61 = PreChrgDone 75 = HH HW Incomp 5 = VqsCmd 19 = ThetaE 34 = Reserved 48 = TestDtoA1 62 = FieldWeak 76 = HH GateShort 6 = VdsFdbk 20 = FldWeakActiv 35 = Reserved 49 = TestDtoA2 63 = Reserved 7 = VqsFdbk 21 = MtrFlxPU 36 = Reserved 50 = TestDtoA3 64 = DynamBrakeOn 8 = IuFdbk 23 = SlipGainFiltr 37 = Reserved 51 = RideThruActv 65 = Reserved 9 = IwFdbk 24 = SlipVdsCmd 38 = TorqueEst 52 = PreChrgReqVp 66 = MCStatusMon 10 = IdsFdbk 25 = MotorVolts 39 = TorqueEstFit 53 = Reserved 67 = MCStatus1 11 = IqsFdbk 26 = BusUtil 40 = Reserved 54 = Reserved 68 = HH OverCurr 12 = IdsCmd 27 = IqsLimit 41 = PowerCalc 55 = Reserved 69 = HH BusOvrVlt 13 = IqsCmd 28 = VqsldsCmd 42 = TorqueCmd 56 = TorqTrimActv 70 = HH Tr Desat | | | | | |
| 476 | MC FaultTP Value Displays the data selected by Par 475 [MC FaultTPSelect]. This parameter should not be changed by the user. Note: This parameter was added for firmware version 2.03. | Default: 0.0 Min/Max: +/- 2147483648 | | | RO | 32-bit Integer |
| 477 | Est Theta Delay Active only in Permanent Magnet motor mode (when Par 485 [Motor Ctrl Mode] equals 2 – "PMag Motor"). Provides a delay for the function that compares the estimated rotor position and the data from the position sensor. | Units: mSec Default: 10 Min/Max: 2/1024 | | | RW | 16-bit Integer |
| 478 | VPL Mem Password Note: This parameter was added for firmware version 2.03. | Default: 0 Min/Max: +/-2147483648 | | | RW | 32-bit Integer |
| 479 | VPL Mem Address Note: This parameter was added for firmware version 2.03. | Default: 0 Min/Max: 0 - 4294967295 | | | RW | 32-bit Integer |
| 480 | VPL Mem Data Int Note: This parameter was added for firmware version 2.03. | Default: 32 Min/Max: +/-2147483648 | | | RW | 32-bit Integer |
| 481 | VPL Mem Data Fit Note: This parameter was added for firmware version 2.03. | Default: 1.25 Min/Max: | | | RW | Real |
| 482 | VPL Mem Data Bit Note: This parameter was added for firmware version 2.03. | Default: 1.25 Min/Max: | | | RW | 32-bit Integer |
| 483 | VPL Mem Link Int Note: This parameter was added for firmware version 2.03. | Default: +/-2147483648 Min/Max: | | | RO | 32-bit Integer |
| 484 | VPL Mem Link Fit Note: This parameter was added for firmware version 2.03. | | | | RO | Real |
| 485 |  Motor Ctrl Mode Enter a value to select the operating mode for the Motor Control (MC). <ul style="list-style-type: none"> Value 0 - Field Oriented Control (FOC) is induction motor control with voltage adaptation. Value 1 - Field Oriented Control 2 (FOC 2) is induction motor control with temperature adaptation. (This option is used only for motors manufactured by Reliance Electric - Japan.) Value 2 - Permanent Magnet Motor Control (Pmag Motor) is permanent magnet motor operation. Value 3 - V/Hz is volts per hertz motor control. Value 4 - Test is the test mode. | Default: 0 = "FOC" Options: 0 = "FOC" 3 = "V/Hz" 1 = "FOC 2" 4 = "Test" 2 = "PMag Motor" | | | | |

| No. | Name Description | Values | | Linkable | Read-Write | Data Type |
|-----|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------|--|----------|------------|----------------|
| 486 | Rated Slip Freq Displays the control slip frequency, determined from Par 3 [Motor NP Hertz] and Par 4 [Motor NP RPM]. Measured and updated by the autotune procedure. Do not change this value. Note: Changed the attributes to allow changing this parameter while the drive is running for firmware version 3.01. | Units: Hz Default: 0.470 Min/Max: 0.000/32.000 Scale: x 1000 | | | RW | 16-bit Integer |
| 487 |  Motor NTC Coef Defines a coefficient used to calculate the rotor temperature from the measured stator temperature. Used only in Field Oriented Control - 2 (FOC2) mode. See Par 485 [Motor Ctrl Mode]. | Units: % Default: 100 Min/Max: 50/200 | | | RW | 16-bit Integer |
| 488 |  Flux Current Specifies the magnetizing current that produces rated flux in the motor in a per unit (percent representation). Measured by the auto-tune procedure. Do not change this value. | Units: % Default: 30.00 Min/Max: 0.00/75.00 Scale: x 100 | | | RW | 16-bit Integer |
| 489 | Flx CurFdbk (Id) Displays flux producing (d-axis) current feedback. | Units: P.U. Default: 0.0000 Min/Max: +/-8.0000 pu | | | RO | Real |
| 490 |  StatorInductance Displays the sum of the stator and cable inductances of the motor in per unit (percent representation), as determined by the auto-tune procedure. Scaled to percent of rated motor impedance. Do not change this value. Note: the default value was changed from 8192 to 4096 for firmware version 3.01. | Units: % Default: 100.0 Min/Max: 0.00/799.99 Scale: 100 = 4096 | | | RW | 16-bit Integer |
| 491 |  StatorResistance Displays the sum of the stator and cable resistances of the motor in per unit (percent representation), as determined by the auto-tune procedure. Scaled to percent of rated motor impedance. Do not change this value. | Units: % Default: 1.00 Min/Max: 0.00/100.00 Scale: 100 = 8192 | | | RW | 16-bit Integer |
| 492 |  Leak Inductance Displays the sum of the motor stator and rotor leak inductance, and motor cable inductances in per unit (percent representation), as determined by the auto-tune procedure. Scaled to percent of rated motor impedance. Do not change this value. | Units: % Default: 20.00 Min/Max: 0.00/100.00 Scale: 100 = 8192 | | | RW | 16-bit Integer |
| 493 |  Leak Indc Satur1 Displays the leakage inductance correction for the first overload level as determined by the autotune procedure. | Units: % Default: 100.00 Min/Max: 25.00/100.00 | | | RW | 16-bit Integer |
| 494 |  Leak Indc Satur2 Displays the leakage inductance correction for the first overload level as determined by the auto-tune procedure. | Units: % Default: 100.00 Min/Max: 25.00/100.00 | | | RW | 16-bit Integer |
| 495 | Iqs Command Displays the torque producing (q-axis) current command. | Units: % Default: 0.0 Min/Max: +/-800.0 Scale: x 10 | | | RO | 16-bit Integer |
| 496 | Ids Command Displays the flux producing (d-axis) current command. | Units: % Default: 0.0 Min/Max: +/-800.0 Scale: x 10 | | | RO | 16-bit Integer |
| 497 | Vqs Command Displays the command for initiation of voltage on the torque producing axis (q-axis). | Units: % Default: 0 Min/Max: +/-200 Scale: 100 = 8192 | | | RO | 16-bit Integer |
| 498 | Vds Command Displays the command for initiation of voltage on the flux producing axis (d-axis). | Units: % Default: 0 Min/Max: +/-200 Scale: 100 = 8192 | | | RO | 16-bit Integer |
| 499 | Trq CurFdbk (Iq) Displays torque producing (q-axis) current feedback. | Units: P.U. Default: 0.0000 Min/Max: +/-8.0000 | | | RO | Real |
| 500 | Bus Util Limit Sets the maximum allowed bus voltage utilization for the Motor Control. Do not change this value. Higher values may result in control instability or over-current faults. | Units: % Default: 90.0 Min/Max: 0.0/100.0 Scale: 100 = 8192 | | | RW | 16-bit Integer |
| 501 |  Torque En Dly Sets the delay between the time the drive is enabled and the time the Motor Control applies torque. | Units: mSec Default: 100 Min/Max: 0/32767 Scale: 100 = 8192 | | | RW | 16-bit Integer |
| 502 |  Rotor Resistance Displays rotor resistance, as determined by the auto-tune procedure. Scaled to percent of rated motor impedance. Do not change this value. | Units: % Default: 1.00 Min/Max: 0.00/100.00 Scale: 100 = 8192 | | | RW | 16-bit Integer |

| No. | Name Description | Values | | Linkable | Read-Write | Data Type | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
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| 503 | Current Reg BW Sets the bandwidth for the current regulator. Par 402 [PWM Frequency] limits the maximum value. Reducing the value reduces current regulator over-shoot. | Units: R/S Default: 600 Min/Max: 100/30000 | | | RW | 16-bit Integer | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 504 | PM AbsEncd Offst Determined by auto-tune procedure. | Default: 0 Min/Max: 0/65535 | | | RW | 16-bit Integer | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 505 | PM TestWait Time Defines the time interval used for the automated measurement of Par 504 [PM AbsEncd Offst] for a Permanent Magnet (PM) motor. | Units: mSec Default: 2000 Min/Max: 500/5000 | | | RW | 16-bit Integer | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 506 | PM Test Idc Ramp Defines the ramp rate of the Flux Producing (d-axis) current reference that is used for the automated measurement of Par 504 [PM AbsEncd Offst] for a Permanent Magnet (PM) motor. | Units: %/mS Default: 0.1 Min/Max: 0.0/195.3 Scale: x 10 | | | RW | 16-bit Integer | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 507 | PM Test FreqRamp Defines the ramp rate of the frequency reference that is used for the automated measurement of Par 504 [PM AbsEncd Offst] for a Permanent Magnet (PM) motor. | Units: %/mS Default: 0.1 Min/Max: 0.0/195.3 Scale: x 10 | | | RW | 16-bit Integer | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 508 | PM Test Freq Ref Defines the frequency reference that is used for the automated measurement of Par 504 [PM AbsEncd Offst] for a Permanent Magnet (PM) motor. | Units: % Default: 10.0 Min/Max: +/-799.9 Scale: x 10 | | | RW | 16-bit Integer | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 509 | PM Test I Ref Defines the amplitude of the Flux Producing (d-axis) current reference that is used for the automated measurement of Par 504 [PM AbsEncd Offst] for a Permanent Magnet (PM) motor. | Units: % Default: 30.0 Min/Max: 0.0/799.9 Scale: x 10 | | | RW | 16-bit Integer | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 510 | FVC Mode Config Configures Field Oriented Control (FOC) operation. <ul style="list-style-type: none">Bit 4 "SlipTuneDone" when set, the value in Par 486 [Rated Slip Freq] is used as the slip gain before the slip regulator becomes active, after power is cycled, or when the drive is reset by the system. When the Slip Tune is completed, this bit will be automatically be set and Par 486 will be updated.Bit 7 "Ids Comp En" setting this bit runs the Ids test, to establish the initial flux current level for the motor, and the inertia test (even if already run).Bit 12 "SlipRsCompEn" when set, the stator resistance will be compensated based on the output of the slip regulator.Bit16 "ManuCurOffst" when set, Par 453 [Iu Offset] is used as the phase U current feedback offset value and Par 454 [Iw Offset] is used as the phase W current feedback offset value. When this bit is not set (default) the phase U and W current feedback offset values are automatically updated when the drive is in a stop condition except during the first 10 seconds of the stop condition.Bit17 "ManuVltOffst" when this bit is set, Par 549 [Vuv Fdbk Offset] is used as the UV voltage feedback offset value and Par 550 [Vvw Fdbk Offset] is used as the VW voltage feedback offset value.Bit 23 "SyncTrans En" when set (default), the synchronous transfer algorithm using voltage feedback data is active. Notes: Bit changes were made for firmware version 2.03. Bits 10 and 11 were added for firmware version 3.01. Changed bit 3 from "Reserved" to "FastFluxDsbl" for firmware version 3.03. Added bits 4, 7, 12, 16, 17 and 23 for firmware version 4.001. | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <div><div></div><div>ATTENTION: Do not modify this parameter. Motor/Drive instabilities and damage could result.</div></div> | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <table><tr><th>Options</th><th>Reserved</th><th>Reserved</th><th>Reserved</th><th>Reserved</th><th>Reserved</th><th>Reserved</th><th>Reserved</th><th>Reserved</th><th>SyncTrans En</th><th>SrLss RdThru</th><th>VltMinOrdLpEn</th><th>SoftAdptGain</th><th>Reserved</th><th>Reserved</th><th>ManuVltOffst</th><th>ManuCurOffst</th><th>LwSpdRfctWv</th><th>Slip Reg En</th><th>SlipGain Est</th><th>SlipRsCompEn</th><th>SlipPloadEn</th><th>SlipSlewRtEn</th><th>RefWaveComp</th><th>BusGain Comp</th><th>Ids Comp En</th><th>Flux Reg Use</th><th>Flux Reg En</th><th>Slip TuneDone</th><th>FastFluxDsbl</th><th>Reserved</th><th>Reserved</th><th>Reserved</th></tr><tr><td>Default</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>1</td><td>0</td><td>1</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>1</td><td>1</td><td>0</td><td>0</td><td>0</td><td>1</td><td>1</td><td>0</td><td>1</td><td>1</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td></tr><tr><td>Bit</td><td>31</td><td>30</td><td>29</td><td>28</td><td>27</td><td>26</td><td>25</td><td>24</td><td>23</td><td>22</td><td>21</td><td>20</td><td>19</td><td>18</td><td>17</td><td>16</td><td>15</td><td>14</td><td>13</td><td>12</td><td>11</td><td>10</td><td>9</td><td>8</td><td>7</td><td>6</td><td>5</td><td>4</td><td>3</td><td>2</td><td>1</td><td>0</td></tr></table> <div>0 = False 1 = True</div> | | | | | | | Options | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | SyncTrans En | SrLss RdThru | VltMinOrdLpEn | SoftAdptGain | Reserved | Reserved | ManuVltOffst | ManuCurOffst | LwSpdRfctWv | Slip Reg En | SlipGain Est | SlipRsCompEn | SlipPloadEn | SlipSlewRtEn | RefWaveComp | BusGain Comp | Ids Comp En | Flux Reg Use | Flux Reg En | Slip TuneDone | FastFluxDsbl | Reserved | Reserved | Reserved | Default | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 1 | 1 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | Bit | 31 | 30 | 29 | 28 | 27 | 26 | 25 | 24 | 23 | 22 | 21 | 20 | 19 | 18 | 17 | 16 | 15 | 14 | 13 | 12 | 11 | 10 | 9 | 8 | 7 | 6 | 5 | 4 | 3 | 2 | 1 | 0 |
| Options | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | SyncTrans En | SrLss RdThru | VltMinOrdLpEn | SoftAdptGain | Reserved | Reserved | ManuVltOffst | ManuCurOffst | LwSpdRfctWv | Slip Reg En | SlipGain Est | SlipRsCompEn | SlipPloadEn | SlipSlewRtEn | RefWaveComp | BusGain Comp | Ids Comp En | Flux Reg Use | Flux Reg En | Slip TuneDone | FastFluxDsbl | Reserved | Reserved | Reserved | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Default | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 1 | 1 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Bit | 31 | 30 | 29 | 28 | 27 | 26 | 25 | 24 | 23 | 22 | 21 | 20 | 19 | 18 | 17 | 16 | 15 | 14 | 13 | 12 | 11 | 10 | 9 | 8 | 7 | 6 | 5 | 4 | 3 | 2 | 1 | 0 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

| No. | Name Description | Values | | | Linkable | Read-Write | Data Type |
|-----|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------|--|----------|------------|----------------|
| 517 | PMag Tune Config Configures Permanent Magnet Motor tuning mode. <div>ATTENTION: Do not modify this parameter. Motor/Drive instabilities and damage could result.</div> | | | | | | |
| | Options | Reserved Reserved Reserved Reserved Reserved Reserved Reserved IndTestA set Reserved Reserved Reserved Reserved Reserved Reserved Reserved Reserved | | | | | |
| | Default | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | | | | | |
| | Bit | 15 14 13 12 11 10 9 8 7 6 5 4 3 2 1 0 | | | | | |
| | | 0 = False 1 = True | | | | | |
| 518 | MC Diag Status Indicates the status of the MC diagnostic tests. | | | | | | |
| | Options | Reserved Reserved Reserved Reserved Reserved Reserved Reserved PwrDiagFltPt PM EncOffset Rot Dir Chk CommCntEncls Comm Count CommParamCal CommLmEndles Comm Lm Meas Comm Signals Comm Rs Meas PDgTrWP-VNOn PDgTrWP-UNOn PDgTrVP-WNOn PDgVP-UNOn PDgUP-WNOn PDgTrUP-VNOn PDgTrUNWNOn PDgTrUPWPOn Pdiag TrWNOn Pdiag TrVNOn Pdiag TrUNOn Pdiag TrWPOn Pdiag TrVPOn Pdiag TrUPOn PdG VbusSens | | | | | |
| | Default | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | | | | | |
| | Bit | 31 30 29 28 27 26 25 24 23 22 21 20 19 18 17 16 15 14 13 12 11 10 9 8 7 6 5 4 3 2 1 0 | | | | | |
| | | 0 = False 1 = True | | | | | |
| 519 | MC Diag Done Indicates which MC diagnostic tests are completed. | | | | | | |
| | Options | Reserved Reserved Reserved Reserved Reserved Reserved Reserved PwrDiagFltPt PM EncOffset Rot Dir Chk CommCntEncls Comm Count CommParamCal CommLmEndles Comm Lm Meas Comm Signals Comm Rs Meas PDgTrWP-VNOn PDgTrWP-UNOn PDgTrVP-WNOn PDgVP-UNOn PDgUP-WNOn PDgTrUP-VNOn PDgTrUNWNOn PDgTrUPWPOn Pdiag TrWNOn Pdiag TrVNOn Pdiag TrUNOn Pdiag TrWPOn Pdiag TrVPOn Pdiag TrUPOn PdG VbusSens | | | | | |
| | Default | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | | | | | |
| | Bit | 31 30 29 28 27 26 25 24 23 22 21 20 19 18 17 16 15 14 13 12 11 10 9 8 7 6 5 4 3 2 1 0 | | | | | |
| | | 0 = False 1 = True | | | | | |
| 520 | PM Q Inductance Indicates the percent-per unit inductance of the motor stator in the torque producing (q-axis). | Units: Default: Min/Max: Scale: | % 20.00 0.00/399.99 100 = 8192 | | RW | | 16-bit Integer |
| 521 | PM D Inductance Indicates the percent-per unit inductance of the motor stator in the flux producing (d-axis). | Units: Default: Min/Max: Scale: | % 20.00 0.00/399.99 100 = 8192 | | RW | | 16-bit Integer |
| 522 | PM Stator Resist Indicates the percent-per unit resistance of the motor stator. | Units: Default: Min/Max: Scale: | % 1.50 0.00/100.00 100 = 8192 | | RW | | 16-bit Integer |
| 523 | PM Mtr CEMF Coef Indicates the coefficient for Counter Electro Motive Force (CEMF) voltage, normalized to base motor speed. | Units: Default: Min/Max: Scale: | % 89.99 0.00/399.99 100 = 8192 | | RW | | 16-bit Integer |
| 525 | Slip Ratio Used by the Field Oriented Control - 2 (FOC2) mode. Indicates the present operating slip frequency at 100% Torque Producing Current (Iqs) scaled to hertz x 100. | Units: Default: Min/Max: Scale: | Hz 0.00 0.00/327.67 x 10 | | RO | | 16-bit Integer |
| 526 | Stator Frequency Displays stator frequency as a percentage of Par.3 [Motor NP Hertz]. | Units: Default: Min/Max: Scale: | % 0.0 -/+800.0 x 10 | | RO | | 16-bit Integer |
| 527 | Start/Acc Boost Sets the voltage boost level for starting and acceleration when “V/Hz” mode is selected. Note: This parameter was added for firmware version 2.03. | Units: Default: Min/Max: | VAC 50.0 0.0/1150.0 | | RW | | 16-bit Integer |

| No. | Name Description | Values | | | Linkable | Read-Write | Data Type | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|---------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------|--------------------------------------------------------------------------------------------------------------------|----------|----------|------------|----------------|----------|----------|----------|----------|----------|----------|----------|----------|--------------|-------------|----------|----------|----------|----------|----------|----------|--------------|-------------|---------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|-----|----|----|----|----|----|----|---|---|---|---|---|---|---|---|---|---|---|
| 528 | Run Boost Sets the boost level for steady state or deceleration when "V/Hz" mode is selected. Note: This parameter was added for firmware version 2.03. | Units: Default: Min/Max: | VAC 50.0 0.0/1150.0 | | | RW | 16-bit Integer | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 529 | Break Voltage Sets the voltage the drive will output at Par 530 [Break Frequency]. Note: This parameter was added for firmware version 2.03. | Units: Default: Min/Max: | VAC 1150.0 0.0/6900.0 | | | RW | 16-bit Integer | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 530 | Break Frequency Sets the frequency the drive will output at Par 529 [Break Voltage]. Note: This parameter was added for firmware version 2.03. | Units: Default: Min/Max: | Hz 150.0 0.0/400.0 | | | RW | 16-bit Integer | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 531 | Maximum Voltage Sets the highest voltage the drive will output. Note: This parameter was added for firmware version 2.03. | Units: Default: Min/Max: | VAC 460.0 60.0/690.0 | | | RW | 16-bit Integer | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 532 | Maximum Freq Sets the highest frequency the drive will output. This parameter is a function of Par 3 [Motor NP Hertz]. Note: This parameter was added for firmware version 2.03. | Units: Default: Min/Max: | Hz (Par 3 [Motor NP Hertz] * 2) + 10Hz Par 3 [Motor NP Hertz] + 10 Hz/420.0 | | | RW | 16-bit Integer | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 533 | SlewRateTimeLimit Defines the time limit in seconds during which torque producing voltage (Vqs) regulator output variations are limited by each slew rate at the transition where the Vqs regulator turns on. The same time limit is applied at the transition to the slip regulator when the slip regulator turns on. A value of zero disables the slew rate function on both the Vqs regulator output and the slip regulator output. Par 553 defines the slew rate for the slip regulator and Par 586 [IdsCmd Slew Rate] defines the slew rate for the Vqs regulator. Notes: This parameter was added for firmware version 3.01. This parameter was renamed from "Flux Gain Adjust" to "SlewRateTimeLimit", the default value was changed to "10.0" and the minimum value was changed to "0.0" for firmware version 4.001. | Default: Min/Max: | 0.0 0.0/1126.0 | | | RW | 16-bit Integer | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 537 | SrLssAngleStblty Adjusts the electrical angle to maintain stable motor operation. An increase in the value increases the angle adjustment. | Default: Min/Max: | 51.0 0.0/32767.0 | | | RW | 16-bit Integer | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 538 | SrLss VoltStblty Adjusts the voltage to maintain stable motor operation. An increase in the value increases the output voltage adjustment. | Default: Min/Max: | 93.0 0.0/32767.0 | | | RW | 16-bit Integer | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 539 | SrLss StbltyFilt The coefficient is used to adjust the bandwidth of a low pass filter. The smaller the value of the coefficient, the lower the bandwidth of the filter. | Default: Min/Max: | 3250.0 0.0/32767.0 | | | RW | 16-bit Integer | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 540 | V/Hz Status Indicates the limit status of the V/Hz Control Operation. Note: This parameter was added form firmware version 2.03. | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | <table><tr><td>Options</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Bus Volt Lim</td><td>Current Lim</td></tr><tr><td>Default</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td></tr><tr><td>Bit</td><td>15</td><td>14</td><td>13</td><td>12</td><td>11</td><td>10</td><td>9</td><td>8</td><td>7</td><td>6</td><td>5</td><td>4</td><td>3</td><td>2</td><td>1</td><td>0</td><td>0</td></tr></table> <div>0 = False 1 = True</div> | | | | | | | Options | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | Bus Volt Lim | Current Lim | Default | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | Bit | 15 | 14 | 13 | 12 | 11 | 10 | 9 | 8 | 7 | 6 | 5 | 4 | 3 | 2 | 1 | 0 | 0 |
| Options | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | Bus Volt Lim | Current Lim | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Default | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Bit | 15 | 14 | 13 | 12 | 11 | 10 | 9 | 8 | 7 | 6 | 5 | 4 | 3 | 2 | 1 | 0 | 0 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 541 | SrLss Angl Comp Not currently used. Note: This parameter was added for future use - not active for use with firmware version 2.03. | Default: Min/Max: | 0.0 +/- 16384 | | | RW | 16-bit Integer | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 542 | SrLss Volt Comp Not currently used. Note: This parameter was added for future use - not active for use with firmware version 2.03. | Units: Default: Min/Max: | Volts 100.0 +/- 1000.0 | | | RW | 16-bit Integer | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 544 |  External DB Res Sets the resistance value of an external dynamic braking resistor. This value is used to determine the power applied to the resistor and thus calculate its temperature. Note: This parameter was added for firmware version 4.001. | Units: Default: Min/Max: | Ohms 49.0 0.1/500.0 | | | RW | Real | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 545 | Bus Reg Ki Sets the responsiveness of the bus regulator. Note: This parameter was added for firmware version 2.03. | Default: Min/Max: | 450.0 0.0/100000 | | | RW | 16-bit Integer | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 546 | Bus Reg Kp Proportional gain for the bus regulator. Used to adjust regulator response. Note: This parameter was added for firmware version 2.03. | Default: Min/Max: | 1500.0 0.0/10000.0 | | | RW | 16-bit Integer | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 547 | Bus Reg Kd Derivative gain for the bus regulator. Used to control regulator overshoot. Note: This parameter was added for firmware version 2.03. | Default: Min/Max: | 1000.0 0.0/10000.0 | | | RW | 16-bit Integer | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |



| No. | Name Description | Values | | | Linkable | Read-Write | Data Type | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
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| 548 | Bus Reg ACR Kp This proportional gain, in conjunction with Par 545 [Bus Reg Ki], adjusts the output frequency of the drive during a bus limit or inertia ride through condition. The output frequency is adjusted in response to an error in the active, or torque producing, current to maintain the active bus limit, or inertia ride through bus reference. A larger value of gain reduces the dynamic error of the active current. Note: This parameter was added for firmware version 2.03. | Default: 225.0 Min/Max: 0.0/100000 | | | | RW | 16-bit Integer | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 549 | Vuv Fdbk Offset Displays the motor U phase to V phase offset voltage from the voltage feedback circuit. The value of the offset is a uni-polarity signal. A zero offset is equal to 16384. Note: This parameter was added for firmware version 3.01. | Default: 16384.0 Min/Max: 15764.0/17004.0 | | | | RW | 16-bit Integer | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 550 | Vvw Fdbk Offset Displays the motor V phase to W phase offset voltage from the voltage feedback circuit. The value of the offset is a uni-polarity signal. A zero offset is equal to 16384. Note: This parameter was added for firmware version 3.01. | Default: 16384.0 Min/Max: 15764.0/17004.0 | | | | RW | 16-bit Integer | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 551 | CurrFdbk AdjTime Compensates for current feedback delays in High Horse Power drives (frames 9 and up). Note: This parameter was added for firmware version 3.01. | Units: uSec Default: 0.0 Min/Max: 0.0/50.0 | | | | RW | 16-bit Integer | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 552 | Slip Preload Val The Slip Gain value to be pre-loaded if the drive is powered down. Note: This parameter was added for firmware version 3.01. | Default: 120.0 Min/Max: 0.0/8192.0 | | | | RW | 32-bit Integer | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 553 | Slip Slew Rate Sets the rate at which the Slip Gain Regulator output transitions from the inactive state to the active state. Notes: This parameter was added for firmware version 3.01. The default value was changed from "2.000" to "0.200" for firmware version 4.001. | Units: uSec Default: 0.200 Min/Max: 0.010/16.383 | | | | RW | Real | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 554 | <div> LED Status Used to monitor LED statuses including the main controller, SynchLink and DriveLogix5370 from a HIM or an application program (e.g., DriveExplorer™). This feature is only available with DriveLogix version 15.03 or later. Bit 0 "Sts Active" - Drive running, no faults are present. Bit 1 "Sts Ready" - Drive ready, but not running & no faults are present. Bit 2 "Sts HW Fault" - A non-resettable fault has occurred in the drive. Bit 3 "Sts Fault" - A fault has occurred in the drive. Bit 4 "Sts Alarm" - A type 1 (user configurable) alarm condition exists, but the drive continues to run. Bit 5 "Sts RunInhbt" - A type 2 (non-configurable) alarm condition exists, drive continues to run. Bit 6 "Sync InSync" - The module is configured as the time keeper or the module is configured as a follower and synchronization is complete. Bit 7 "Sync NotSync" - The follower(s) are not configured with the time keeper. Bit 8 "DL Run Mode" - The controller is in "Run" mode. Bit 9 "DL Force Act" - I/O forces are active (enabled) but may or may not exist. Bit 10 "DL ForceNtEn" - One or more input or output addresses have been forced to an On or Off state, but the forces have not been enabled. Bit 11 "DL Battery" - Either the battery is not installed or 95% discharged and should be replaced. Bit 12 "DL I/O Activ" - The controller is communicating with all the devices in its I/O configuration. Bit 13 "DL I/O Alarm" - One or more devices in the I/O configuration of the controller are not responding. Bit 14 "DL I/O Fault" - The controller is not communicating to any devices and is faulted. Bit 15 "DL ComActive" - RS-232 activity. Bit 16 "DL Fault" - The controller detected a non-recoverable fault, so it cleared the project from memory. Bit 17 "DL NotActive" - If the controller is a new, then it requires a firmware update, or if the controller is not new, a major fault occurred. Bit 18 "DL OK" - Controller is OK. Bit 19 "DL Loading" - The controller is storing or loading a project to or from nonvolatile memory. Bit 20 "DL CF Flash" - The controller is reading from or writing to the CompactFlash™ card. Bit 21 "DL CF Format" - The CompactFlash memory is not initialized. Bit 22 "DL CF Error" - CompactFlash card does not have a valid file system. Note: This parameter was added for firmware version 3.01.</div> <table><tr><th>Options</th><th>Reserved</th><th>Reserved</th><th>Reserved</th><th>Reserved</th><th>Reserved</th><th>Reserved</th><th>Reserved</th><th>Reserved</th><th>Reserved</th><th>Reserved</th><th>DL CF Error</th><th>DL CF Format</th><th>DL CF Flash</th><th>DL Loading</th><th>DL OK</th><th>DL NotActive</th><th>DL Fault</th><th>DL ComActive</th><th>DL I/O Fault</th><th>DL I/O Alarm</th><th>DL I/O Activ</th><th>DL Battery</th><th>DL ForceNtEn</th><th>DL Force Act</th><th>DL Run Mode</th><th>Sync NotSync</th><th>Sync InSync</th><th>Sis RunInhbt</th><th>Sis Alarm</th><th>Sis Fault</th><th>Sis HW Fault</th><th>Sis Ready</th><th>Sis Active</th></tr><tr><td>Default</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td></tr><tr><td>Bit</td><td>31</td><td>30</td><td>29</td><td>28</td><td>27</td><td>26</td><td>25</td><td>24</td><td>23</td><td>22</td><td>21</td><td>20</td><td>19</td><td>18</td><td>17</td><td>16</td><td>15</td><td>14</td><td>13</td><td>12</td><td>11</td><td>10</td><td>9</td><td>8</td><td>7</td><td>6</td><td>5</td><td>4</td><td>3</td><td>2</td><td>1</td><td>0</td></tr></table> <div>0 = False 1 = True</div> | | | | | | | Options | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | DL CF Error | DL CF Format | DL CF Flash | DL Loading | DL OK | DL NotActive | DL Fault | DL ComActive | DL I/O Fault | DL I/O Alarm | DL I/O Activ | DL Battery | DL ForceNtEn | DL Force Act | DL Run Mode | Sync NotSync | Sync InSync | Sis RunInhbt | Sis Alarm | Sis Fault | Sis HW Fault | Sis Ready | Sis Active | Default | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | Bit | 31 | 30 | 29 | 28 | 27 | 26 | 25 | 24 | 23 | 22 | 21 | 20 | 19 | 18 | 17 | 16 | 15 | 14 | 13 | 12 | 11 | 10 | 9 | 8 | 7 | 6 | 5 | 4 | 3 | 2 | 1 | 0 |
| Options | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | DL CF Error | DL CF Format | DL CF Flash | DL Loading | DL OK | DL NotActive | DL Fault | DL ComActive | DL I/O Fault | DL I/O Alarm | DL I/O Activ | DL Battery | DL ForceNtEn | DL Force Act | DL Run Mode | Sync NotSync | Sync InSync | Sis RunInhbt | Sis Alarm | Sis Fault | Sis HW Fault | Sis Ready | Sis Active | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Default | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Bit | 31 | 30 | 29 | 28 | 27 | 26 | 25 | 24 | 23 | 22 | 21 | 20 | 19 | 18 | 17 | 16 | 15 | 14 | 13 | 12 | 11 | 10 | 9 | 8 | 7 | 6 | 5 | 4 | 3 | 2 | 1 | 0 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

0 = False
1 = True

[illegible]

| No. | Name Description | Values | Linkable | Read-Write | Data Type |
|-----|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------|----------|------------|----------------|
| 558 | Trend State Value indicates the state of the Data Trend function. <ul style="list-style-type: none"> Value 0 - Wait Enable indicates the trend function is ready and waiting to begin data collection. Setting bit 0 "Enbl Collect" of Par 556 [Trend Control] will cause data collection to begin. In this state, Par 569 [TrendBuffPointer] and the Trend Output Parameters are active. Value 1 - First Scan indicates the Trend function is executing the first pass through the trend sample buffer. This takes 512 ms. (0.5 ms x 1024 samples). When it enters this state, the Trend function clears bit 1 "Triggered" and 2 "Complete" bits of Par 557 [Trend Status]. While in this state, the Trend function refreshes the data. Also while in this state, the function forces the Trend Output parameters to zero. When done, it enters the Pre-trigger state. Value 2 - Pre-trigger indicates the Trend function is sampling the trend inputs and storing them in memory, at a rate determined by Par 559 [Trend Rate]. Sampling continues until either the trend trigger event occurs or bit 0 "Enbl Collect" of Par 556 [Trend Control] is cleared. While in this state, the Trend function forces the Trend Output parameters to zero. If the trigger event occurs, the function sets bit 1 "Triggered" of Par 557 [Trend Status] and enters the Post-trigger state. If bit 0 "Enbl Collect" of Parameter 556 [Trend Control] is cleared, the function sets bit 2 "Complete" of Par 557 [Trend Status] and returns to the Wait Enable state. Value 3 - Post-trigger indicates the Trend function is continuing to sample and save the trend inputs until the buffer is full. While in this state, the function forces the Trend Output parameters to zero value. When the buffer is full, the function sets bit 2 "Complete" of Par 557 [Trend Status] and enters the Wait Disable state. Value 4 - Wait Disable indicates the Trend function is complete and waiting for bit 0 "Enbl Collect" of Par 556 [Trend Control] to be cleared. When this is done, the trend function returns to the Wait Enable state. While in the Wait Disable state, Par 569 [TrendBuffPointer] and the Trend Output Parameters are active. | Default: 0 = "Wait Enable" Options: 0 = "Wait Enable" 1 = "First Scan" 2 = "Pre-trigger" 3 = "Post-trigger" 4 = "Wait Disable" | | | |
| 559 | Trend Rate Sets the sample time for both trend input and output updates. | Units: mSec Default: 0.5000 Min/Max: 0.5000/1000.0000 | ✓ | RW | Real |
| 560 | Trend TrigA DInt Provides the integer input for the A trigger function. This integer is converted to a real number and summed with Par 561 [Trend TrigA Real]. The result is compared with the Trigger B sum. If the A sum exceeds the B sum, then a trend trigger will occur. | Default: 0 Min/Max: -/+2147483648 | ✓ | RW | 32-bit Integer |
| 561 | Trend TrigA Real Provides the real input for the A trigger function. This real number is summed with Par 560 [Trend TrigA Int]. The result is compared with the Trigger B sum. If the A sum exceeds the B sum, then a trend trigger will occur. | Default: 0.0000 Min/Max: -/+2200000000.0000 | ✓ | RW | Real |
| 562 | Trend TrigB DInt Provides the integer input for the B trigger function. This integer is converted to a real number and summed with Par 563 [Trend TrigB Real]. The result is compared with the Trigger A sum. If the A sum exceeds the B sum, then a trend trigger will occur. | Default: 0 Min/Max: -/+2147483648 | ✓ | RW | 32-bit Integer |
| 563 | Trend TrigB Real Provides the real input for the B trigger function. This real number is summed with Par 562 [Trend TrigB Int]. The result is compared with the Trigger A sum. If the A sum exceeds the B sum, then a trend trigger will occur. | Default: 0.0000 Min/Max: -/+2200000000.0000 | ✓ | RW | Real |
| 564 | Trend Trig Data This is the logic input for the Trend Trigger Function. A trigger will occur on the rise of the specified bit in this word. The bit will be specified by Par 565 [Trend Trig Bit]. | Default: 00000000000000000000000000000000 Min: 00000000000000000000000000000000 Max: 11111111111111111111111111111111 | ✓ | RW | 32-bit Boolean |
| 565 | Trend Trig Bit Specifies the bit in Par 564 [Trend Trig Data] that will cause a Trend Trigger to occur. Positive numbers specify rising edges and negative numbers specify falling edges. | Default: 0 Min/Max: -32/31 | ✓ | RW | 16-bit Integer |
| 566 | Trend PreSamples Specifies the number pre-trigger samples in the trend buffer. Pre-trigger samples are the samples that occur before the trigger and remain in the buffer. The remainder of the trend buffer will contain post-trigger samples. | Default: 511 Min/Max: 0/1022 j | ✓ | RW | 16-bit Integer |
| 567 | Trend Mark DInt Marks the start of data for trend buffers that are using integer data. The Trend Marker can be used to provide a scope trigger signal for the Auto Output function. | Default: 0 Min/Max: -/+2147483648 | ✓ | RW | 32-bit Integer |
| 568 | Trend Mark Real Marks the start of data for trend buffers that are using real data. The Trend Marker can be used to provide a scope trigger signal for the Auto Output function. | Default: 0.0000 Min/Max: -/+2200000000.0000 | ✓ | RW | Real |
| 569 | TrendBuffPointer Selects the trend buffer element to be displayed in the Trend Output Parameters when the trend function is inactive (not collecting data samples). A zero value points to the element that corresponds to the trigger event. Negative values point to pre-trigger data. Positive values point to post-trigger data. When the Auto Output function is running, this parameter will automatically sequence through it's full range, at a rate set by Par 559 [Trend Rate]. | Default: 0 Min/Max: -/+1023 | ✓ | RW | 16-bit Integer |

| No. | Name Description | Values | | Linkable | Read-Write | Data Type |
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| 570 | Trend In1 DInt Provides integer input to the Trend 1. The Trending function samples this parameter for Trend Buffer 1, if bit 1 "In 1 Real" is cleared. | Default: 0 Min/Max: -/+2147483648 | | ✓ | RW | 32-bit Integer |
| 571 | Trend In1 Real Provides real input to the Trend 1. The Trending function samples this parameter for Trend Buffer 1, if bit 1 "In 1 Real" is set. | Default: 0.0000 Min/Max: -/+2200000000.0000 | | ✓ | RW | Real |
| 572 | Trend Out1 DInt Displays the output for Trend Buffer 1, if the buffer is using integer data. This will equal the value of the element, in Trend Buffer 1, specified by Par 569 [TrendBuffPointer]. | Default: 0 Min/Max: -/+2147483648 | | | RO | 32-bit Integer |
| 573 | Trend Out1 Real Displays the output for Trend Buffer 1, if the buffer is using real data. This will equal the value of the element, in Trend Buffer 1, specified by Par 569 [TrendBuffPointer]. | Default: 0.0000 Min/Max: -/+2200000000.0000 | | | RO | Real |
| 574 | Trend In2 DInt Provides integer input to the Trend 2. The Trending function samples this parameter for Trend Buffer 2, if bit 2 "In 2 Real" is cleared. | Default: 0 Min/Max: -/+2147483648 | | ✓ | RW | 32-bit Integer |
| 575 | Trend In2 Real Provides real input to the Trend 2. The Trending function samples this parameter for Trend Buffer 2, if bit 2 "In 2 Real" is set. | Default: 0.0000 Min/Max: -/+2200000000.0000 | | ✓ | RW | Real |
| 576 | Trend Out2 DInt Displays the output for Trend Buffer 2, if the buffer is using integer data. This will equal the value of the element, in Trend Buffer 2, specified by Par 569 [TrendBuffPointer]. | Default: 0 Min/Max: -/+2147483648 | | | RO | 32-bit Integer |
| 577 | Trend Out2 Real Displays the output for Trend Buffer 2, if the buffer is using real data. This will equal the value of the element, in Trend Buffer 2, specified by Par 569 [TrendBuffPointer]. | Default: 0.0000 Min/Max: -/+2200000000.0000 | | | RO | Real |
| 578 | Trend In3 DInt Provides integer input to the Trend 3. The Trending function samples this parameter for Trend Buffer 3, if bit 3 "In 3 Real" is cleared. | Default: 0 Min/Max: -/+2147483648 | | ✓ | RW | 32-bit Integer |
| 579 | Trend In3 Real Provides real input to the Trend 3. The Trending function samples this parameter for Trend Buffer 3, if bit 3 "In 3 Real" is set. | Default: 0.0000 Min/Max: -/+2200000000.0000 | | ✓ | RW | Real |
| 580 | Trend Out3 DInt Displays the output for Trend Buffer 3, if the buffer is using integer data. This will equal the value of the element, in Trend Buffer 3, specified by Par 569 [TrendBuffPointer]. | Default: 0 Min/Max: -/+2147483648 | | | RO | 32-bit Integer |
| 581 | Trend Out3 Real Displays the output for Trend Buffer 3, if the buffer is using real data. This will equal the value of the element, in Trend Buffer 3, specified by Par 569 [TrendBuffPointer]. | Default: 0.0000 Min/Max: -/+2200000000.0000 | | | RO | Real |
| 582 | Trend In4 DInt Provides integer input to the Trend 4. The Trending function samples this parameter for Trend Buffer 4, if bit 4 "In 4 Real" is cleared. | Default: 0 Min/Max: -/+2147483648 | | ✓ | RW | 32-bit Integer |
| 583 | Trend In4 Real Provides real input to the Trend 4. The Trending function samples this parameter for Trend Buffer 4, if bit 4 "In 4 Real" is set. | Default: 0.0000 Min/Max: -/+2200000000.0000 | | ✓ | RW | Real |
| 584 | Trend Out4 DInt Displays the output for Trend Buffer 4, if the buffer is using integer data. This will equal the value of the element, in Trend Buffer 4, specified by Par 569 [TrendBuffPointer]. | Default: 0 Min/Max: -/+2147483648 | | | RO | 32-bit Integer |
| 585 | Trend Out4 Real Displays the output for Trend Buffer 4, if the buffer is using real data. This will equal the value of the element, in Trend Buffer 4, specified by Par 569 [TrendBuffPointer]. | Default: 0 Min/Max: -/+2200000000.0000 | | | RO | Real |
| 586 | IdsCmd Slew Rate Defines the slew rate for the torque producing voltage (Vqs) regulator. The output variation is limited by one count every Par 586 / 16 sec. Notes: This value should not be changed. This parameter was added for firmware version 4.001. | Units: Sec Default: 5.000 Min/Max: 0.000/16.383 | | | RW | Real |
| 587 | SlipReg Err Lmt Defines the error level at which the slip regulator input becomes active. When the error level reaches the value specified in this parameter and the error count condition (specified in Par 589 [Err Count Lmt]) is met, the drive control will transition from the slew rate limit mode to normal operation of the slip regulator. Notes: This value should not be changed. This parameter was added for firmware version 4.001. | Default: 0 Min/Max: +/-32767 | | | RW | 16-bit Integer |
| 588 | VqsReg Err Lmt Defines the error level at which the Flux Producing Voltage (Vqs) regulator input becomes active. When the error level reaches the value specified in this parameter and the error count condition (specified in Par 589 [Err Count Lmt]) is met, the drive control will transition from the slew rate limit mode to normal operation of the Vqs regulator. Notes: This value should not be changed. This parameter was added for firmware version 4.001. | Default: 0 Min/Max: +/-32767 | | | RW | 16-bit Integer |






| No. | Name Description | Values | | | Linkable | Read-Write | Data Type | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
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| 589 | Err Count Lmt Defines the control loop counts limit, where the counter counts up if the error level of the Vqs regulator input is equal to the error level during Flux Producing Current (Ids) command Slew Rate operation. When the counter exceeds the value of this parameter then the normal Vqs regulator operation becomes active. The same limit of control loop counts is applied to the Slip Slew Rate operation, where the counter counts up if the error level of the Slip regulator input is equal to the error level during Slip Slew Rate operation. When the counter exceeds the value of this parameter then the normal Slip regulator operation becomes active. Notes: This value should not be changed. This parameter was added for firmware version 4.001. | Default: 0 Min/Max: +/-32767 | | | | RW | 16-bit Integer | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 590 | RsTempCoefAdjust The value specified in this parameter adjusts the temperature compensation coefficient which is calculated based on the Slip regulator output. A value of 4096 in this parameter doubles the compensation coefficient. Notes: This value should not be changed. This parameter was added for firmware version 4.001. | Default: 0 Min/Max: +/-32767 | | | | RW | 16-bit Integer | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 591 | RsTmpCoefAdjstEn A value of "1" in this parameter enables the temperature compensation function in flux and torque estimate calculation, where the temperature information is based on the Slip regulator output. A value of "0" in this parameter disables the temperature compensation function. Notes: This value should not be changed. This parameter was added for firmware version 4.001. | Default: 0 Min/Max: +/-32767 | | | | RW | 16-bit Integer | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 592 | VqsReg On Hystr For Future Use. Note: This parameter was added for firmware version 4.001. | Default: 0 Min/Max: +/-32767 | | | | RW | 16-bit Integer | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 593 | SlipReg On Hystr For Future Use. Note: This parameter was added for firmware version 4.001. | Default: 0 Min/Max: +/-32767 | | | | RW | 16-bit Integer | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 600 |  Lgx Comm Format Indicates the Controller to Drive communication format. | Default: 16 = "Speed Ctrl" Options: 0 = "Not Used" 18 = "UserDefin 1" 16 = "Speed Ctrl" 19 = "Motion" 17 = "PositionCtrl" 32 = "CustmUserDef" Note: Option values 1 - 15 and 20 - 31 are "Reserved" | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 601 | From DL DataType Sets the type of data for each word communicated from DriveLogix™ to the PowerFlex 700S drive. Setting a bit High will configure the associated word as a Real data type and setting the bit Low will configure it for Integer data type. | <table><tr><th>Options</th><th>Reserved</th><th>Reserved</th><th>Reserved</th><th>Reserved</th><th>Reserved</th><th>Reserved</th><th>Reserved</th><th>Reserved</th><th>Reserved</th><th>Reserved</th><th>Reserved</th><th>Reserved</th><th>DL 20 Real</th><th>DL 19 Real</th><th>DL 18 Real</th><th>DL 17 Real</th><th>DL 16 Real</th><th>DL 15 Real</th><th>DL 14 Real</th><th>DL 13 Real</th><th>DL 12 Real</th><th>DL 11 Real</th><th>DL 10 Real</th><th>DL 09 Real</th><th>DL 08 Real</th><th>DL 07 Real</th><th>DL 06 Real</th><th>DL 05 Real</th><th>DL 04 Real</th><th>DL 03 Real</th><th>DL 02 Real</th><th>DL 01 Real</th><th>DL 00 Real</th><th></th></tr><tr><td>Default</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0 = False 1 = True</td></tr><tr><td>Bit</td><td>31</td><td>30</td><td>29</td><td>28</td><td>27</td><td>26</td><td>25</td><td>24</td><td>23</td><td>22</td><td>21</td><td>20</td><td>19</td><td>18</td><td>17</td><td>16</td><td>15</td><td>14</td><td>13</td><td>12</td><td>11</td><td>10</td><td>9</td><td>8</td><td>7</td><td>6</td><td>5</td><td>4</td><td>3</td><td>2</td><td>1</td><td>0</td><td></td></tr></table> | | | | | | Options | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | DL 20 Real | DL 19 Real | DL 18 Real | DL 17 Real | DL 16 Real | DL 15 Real | DL 14 Real | DL 13 Real | DL 12 Real | DL 11 Real | DL 10 Real | DL 09 Real | DL 08 Real | DL 07 Real | DL 06 Real | DL 05 Real | DL 04 Real | DL 03 Real | DL 02 Real | DL 01 Real | DL 00 Real | | Default | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 = False 1 = True | Bit | 31 | 30 | 29 | 28 | 27 | 26 | 25 | 24 | 23 | 22 | 21 | 20 | 19 | 18 | 17 | 16 | 15 | 14 | 13 | 12 | 11 | 10 | 9 | 8 | 7 | 6 | 5 | 4 | 3 | 2 | 1 | 0 | |
| Options | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | DL 20 Real | DL 19 Real | DL 18 Real | DL 17 Real | DL 16 Real | DL 15 Real | DL 14 Real | DL 13 Real | DL 12 Real | DL 11 Real | DL 10 Real | DL 09 Real | DL 08 Real | DL 07 Real | DL 06 Real | DL 05 Real | DL 04 Real | DL 03 Real | DL 02 Real | DL 01 Real | DL 00 Real | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Default | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 = False 1 = True | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Bit | 31 | 30 | 29 | 28 | 27 | 26 | 25 | 24 | 23 | 22 | 21 | 20 | 19 | 18 | 17 | 16 | 15 | 14 | 13 | 12 | 11 | 10 | 9 | 8 | 7 | 6 | 5 | 4 | 3 | 2 | 1 | 0 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 602 to 622 | FromDriveLogix00 to FromDriveLogix20 These parameters display the input values communicated from the DriveLogix controller to the PowerFlex 700S drive. | Default: 0 Min/Max: +/-32 (dependant on Par 601 [From DL DataType]) | | | | RO | 32-bit Integer | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 625 | To DL DataType Sets the data type for each word communicated from the PowerFlex 700S drive to DriveLogix. Setting a bit High will configure the associated word as a Real data type and setting the bit Low will configure it for Integer data type. | <table><tr><th>Options</th><th>Reserved</th><th>Reserved</th><th>Reserved</th><th>Reserved</th><th>Reserved</th><th>Reserved</th><th>Reserved</th><th>Reserved</th><th>Reserved</th><th>Reserved</th><th>Reserved</th><th>Reserved</th><th>DL 20 Real</th><th>DL 19 Real</th><th>DL 18 Real</th><th>DL 17 Real</th><th>DL 16 Real</th><th>DL 15 Real</th><th>DL 14 Real</th><th>DL 13 Real</th><th>DL 12 Real</th><th>DL 11 Real</th><th>DL 10 Real</th><th>DL 09 Real</th><th>DL 08 Real</th><th>DL 07 Real</th><th>DL 06 Real</th><th>DL 05 Real</th><th>DL 04 Real</th><th>DL 03 Real</th><th>DL 02 Real</th><th>DL 01 Real</th><th>DL 00 Real</th><th></th></tr><tr><td>Default</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0 = False 1 = True</td></tr><tr><td>Bit</td><td>31</td><td>30</td><td>29</td><td>28</td><td>27</td><td>26</td><td>25</td><td>24</td><td>23</td><td>22</td><td>21</td><td>20</td><td>19</td><td>18</td><td>17</td><td>16</td><td>15</td><td>14</td><td>13</td><td>12</td><td>11</td><td>10</td><td>9</td><td>8</td><td>7</td><td>6</td><td>5</td><td>4</td><td>3</td><td>2</td><td>1</td><td>0</td><td></td></tr></table> | | | | | | Options | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | DL 20 Real | DL 19 Real | DL 18 Real | DL 17 Real | DL 16 Real | DL 15 Real | DL 14 Real | DL 13 Real | DL 12 Real | DL 11 Real | DL 10 Real | DL 09 Real | DL 08 Real | DL 07 Real | DL 06 Real | DL 05 Real | DL 04 Real | DL 03 Real | DL 02 Real | DL 01 Real | DL 00 Real | | Default | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 = False 1 = True | Bit | 31 | 30 | 29 | 28 | 27 | 26 | 25 | 24 | 23 | 22 | 21 | 20 | 19 | 18 | 17 | 16 | 15 | 14 | 13 | 12 | 11 | 10 | 9 | 8 | 7 | 6 | 5 | 4 | 3 | 2 | 1 | 0 | |
| Options | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | DL 20 Real | DL 19 Real | DL 18 Real | DL 17 Real | DL 16 Real | DL 15 Real | DL 14 Real | DL 13 Real | DL 12 Real | DL 11 Real | DL 10 Real | DL 09 Real | DL 08 Real | DL 07 Real | DL 06 Real | DL 05 Real | DL 04 Real | DL 03 Real | DL 02 Real | DL 01 Real | DL 00 Real | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Default | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 = False 1 = True | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Bit | 31 | 30 | 29 | 28 | 27 | 26 | 25 | 24 | 23 | 22 | 21 | 20 | 19 | 18 | 17 | 16 | 15 | 14 | 13 | 12 | 11 | 10 | 9 | 8 | 7 | 6 | 5 | 4 | 3 | 2 | 1 | 0 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 626 to 646 |  To DriveLogix00 to DriveLogix20 These parameters display the output values communicated from the PowerFlex 700S drive to the DriveLogix controller. | Default: 0 Min/Max: +/-32 (dependant on Par 625 [To DL DataType]) | | | ✓ | RO | Set by Par 625 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

| No. | Name Description | Values | | | Linkable | Read-Write | Data Type | | | | | | | | | | | | | | | | | | | | | | | | | |
|---------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------|--------------|-------------|--------------|--------------|--------------------------------|--------------|-------------|--------------|---------|---|---|---|---|---|---|---|---|-----|---|---|---|---|---|---|---|---|--|--|--|--|
| 650 | <div><div></div><div>DPI In DataType Sets the data type for each word communicated from an external controller to the PowerFlex 700S drive via a DPI communication module. Setting a bit High will configure the associated word as a Real data type and setting the bit Low will configure it for Integer data type.</div></div> <div><table><tr><td>Options</td><td>DPI D2 Real</td><td>DPI D1 Real</td><td>DPI C2 Real</td><td>DPI C1 Real</td><td>DPI B2 Real</td><td>DPI B1 Real</td><td>DPI A2 Real</td><td>DPI A1 Real</td></tr><tr><td>Default</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td></tr><tr><td>Bit</td><td>7</td><td>6</td><td>5</td><td>4</td><td>3</td><td>2</td><td>1</td><td>0</td></tr></table><div>0 = False 1 = True</div></div> | Options | DPI D2 Real | DPI D1 Real | DPI C2 Real | DPI C1 Real | DPI B2 Real | DPI B1 Real | DPI A2 Real | DPI A1 Real | Default | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | Bit | 7 | 6 | 5 | 4 | 3 | 2 | 1 | 0 | | | | |
| Options | DPI D2 Real | DPI D1 Real | DPI C2 Real | DPI C1 Real | DPI B2 Real | DPI B1 Real | DPI A2 Real | DPI A1 Real | | | | | | | | | | | | | | | | | | | | | | | | |
| Default | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | | | | | | | | | | | | | | | | | | | | | | | |
| Bit | 7 | 6 | 5 | 4 | 3 | 2 | 1 | 0 | | | | | | | | | | | | | | | | | | | | | | | | |
| 651 | DPI Data In A1 | Default: 0 Min/Max: -/+32 (dependant on Par 650 [DPI In DataType]) | | | RO | | 32-bit Integer | | | | | | | | | | | | | | | | | | | | | | | | | |
| 652 | DPI Data In A2 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 653 | DPI Data In B1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 654 | DPI Data In B2 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 655 | DPI Data In C1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 656 | DPI Data In C2 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 657 | DPI Data In D1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 658 | DPI Data In D2 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| These parameters display the input values communicated from DPI communication modules to the PowerFlex 700S drive. | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 659 | <div><div></div><div>DPI Out DataType Sets the data type for each word communicated from the PowerFlex 700S drive to an external controller via a DPI communication module. Setting a bit High will configure the associated word as a Real data type and setting the bit Low will configure it for Integer data type.</div></div> <div><table><tr><td>Options</td><td>DPI D2 Real</td><td>DPI D1 Real</td><td>DPI C2 Real</td><td>DPI C1 Real</td><td>DPI B2 Real</td><td>DPI B1 Real</td><td>DPI A2 Real</td><td>DPI A1 Real</td></tr><tr><td>Default</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td></tr><tr><td>Bit</td><td>7</td><td>6</td><td>5</td><td>4</td><td>3</td><td>2</td><td>1</td><td>0</td></tr></table><div>0 = False 1 = True</div></div> | Options | DPI D2 Real | DPI D1 Real | DPI C2 Real | DPI C1 Real | DPI B2 Real | DPI B1 Real | DPI A2 Real | DPI A1 Real | Default | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | Bit | 7 | 6 | 5 | 4 | 3 | 2 | 1 | 0 | | | | |
| Options | DPI D2 Real | DPI D1 Real | DPI C2 Real | DPI C1 Real | DPI B2 Real | DPI B1 Real | DPI A2 Real | DPI A1 Real | | | | | | | | | | | | | | | | | | | | | | | | |
| Default | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | | | | | | | | | | | | | | | | | | | | | | | |
| Bit | 7 | 6 | 5 | 4 | 3 | 2 | 1 | 0 | | | | | | | | | | | | | | | | | | | | | | | | |
| 660 | DPI Data Out A1 | Default: 0 Min/Max: -/+32 (dependant on Par 659 [DPI Out DataType]) | | | ✓ | RW | Set by Par 659 | | | | | | | | | | | | | | | | | | | | | | | | | |
| 661 | DPI Data Out A2 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 662 | DPI Data Out B1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 663 | DPI Data Out B2 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 664 | DPI Data Out C1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 665 | DPI Data Out C2 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 666 | DPI Data Out D1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 667 | DPI Data Out D2 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| These parameters display the output values communicated from the PowerFlex 700S drive to DPI communication modules. | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 669 | <div><div></div><div>Write Mask Enables/disables write access (parameters, links, etc.) for DPI ports. Changes to this parameter only become effective when power is cycled, the drive is reset or bit 15 "Security" of Par 712 [Write Mask Act], transitions from "1" to "0." Note: This parameter was added for firmware version 3.01.</div></div> <div><table><tr><td>Options</td><td>DriveLogix</td><td>Reserved</td><td>Int DPI Comm</td><td>Reserved</td><td>Aux DPI Conn</td><td>Ext DPI Conn</td><td>Local HIM</td><td>Terminal Blk</td></tr><tr><td>Default</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td></tr><tr><td>Bit</td><td>7</td><td>6</td><td>5</td><td>4</td><td>3</td><td>2</td><td>1</td><td>0</td></tr></table><div>0 = False 1 = True</div></div> | Options | DriveLogix | Reserved | Int DPI Comm | Reserved | Aux DPI Conn | Ext DPI Conn | Local HIM | Terminal Blk | Default | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | Bit | 7 | 6 | 5 | 4 | 3 | 2 | 1 | 0 | | | | |
| Options | DriveLogix | Reserved | Int DPI Comm | Reserved | Aux DPI Conn | Ext DPI Conn | Local HIM | Terminal Blk | | | | | | | | | | | | | | | | | | | | | | | | |
| Default | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | | | | | | | | | | | | | | | | | | | | | | | |
| Bit | 7 | 6 | 5 | 4 | 3 | 2 | 1 | 0 | | | | | | | | | | | | | | | | | | | | | | | | |

| No. | Name Description | Values | | | Linkable | Read-Write | Data Type |
|-----|---------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------|----------|----|----------|------------|----------------|
| 670 | Logic Mask Determines which adapters can control the drive. | | | | | | |
| 671 | Start Mask Controls which adapters can issue start commands. | | | | | | |
| 672 | Jog Mask Controls which adapters can issue jog commands. | | | | | | |
| 673 | Direction Mask Controls which adapters can issue forward/reverse direction commands. | | | | | | |
| 674 | Fault Clr Mask Controls which adapters can clear a fault. | | | | | | |
| 677 | Stop Owner Indicates which adapter are currently issuing a valid stop command. | | | | | | |
| 678 | Start Owner Indicates which adapter are currently issuing a valid start command. | | | | | | |
| 679 | Jog Owner Indicates which adapter are currently issuing a valid jog command. | | | | | | |
| 680 | Direction Owner Indicates which adapter is currently has exclusive control of direction changes. | | | | | | |
| 681 | Fault Clr Owner Indicates which adapter is currently clearing a fault. | | | | | | |
| | Options | | | | | | |
| | Default | 1 | 1 | 1 | 1 | 1 | 1 |
| | Bit | 7 | 6 | 5 | 4 | 3 | 2 |
| | | 1 | 1 | 1 | 1 | 1 | 1 |
| | | 0 = False | 1 = True | | | | |
| 684 | MotnUpdatePeriod The servo update period for the servo axis (drive). | Unit: uSec Default: 2000 Min/Max: 1/999999 | | | RO | | 32-bit Integer |
| 685 | Motn CoarseMulti Number of Par 684 [MotnUpdatePeriod] comprising one Course Update Period from the Motion Period. | Default: 4 Min/Max: 2/16 | | | RO | | 32-bit Integer |
| 686 | Motn Config Configuration bits pertaining to Motion-related functions for the Servo axis. | | | | | | |
| | Options | | | | | | |
| | Default | 0 | 0 | 0 | 0 | 0 | 0 |
| | Bit | 15 | 14 | 13 | 12 | 11 | 10 |
| | | 9 | 8 | 7 | 6 | 5 | 4 |
| | | 3 | 2 | 1 | 0 | | |
| | | 0 = False | 1 = True | | | | |
| 687 | Motn Axis Status Status bits pertaining to Motion-related functions for the Servo axis. | | | | | | |
| | Options | | | | | | |
| | Default | 0 | 0 | 0 | 0 | 0 | 0 |
| | Bit | 31 | 30 | 29 | 28 | 27 | 26 |
| | | 25 | 24 | 23 | 22 | 21 | 20 |
| | | 19 | 18 | 17 | 16 | 15 | 14 |
| | | 13 | 12 | 11 | 10 | 9 | 8 |
| | | 7 | 6 | 5 | 4 | 3 | 2 |
| | | 1 | 0 | | | | |
| | | 0 = False | 1 = True | | | | |
| 688 | Motn AxisControl Command request bits from the Motion Planner both the Servo and Feedback Only Axis. | | | | | | |
| | Options | | | | | | |
| | Default | 0 | 0 | 0 | 0 | 0 | 0 |
| | Bit | 31 | 30 | 29 | 28 | 27 | 26 |
| | | 25 | 24 | 23 | 22 | 21 | 20 |
| | | 19 | 18 | 17 | 16 | 15 | 14 |
| | | 13 | 12 | 11 | 10 | 9 | 8 |
| | | 7 | 6 | 5 | 4 | 3 | 2 |
| | | 1 | 0 | | | | |
| | | 0 = False | 1 = True | | | | |

| No. | Name Description | Values | | | Linkable | Read-Write | Data Type | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
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| 697 | Motn PositLock Tol Position lock tolerance for the Motion Servo Axis. | Default: 0 Min/Max: 0/2147483648 | | | | RW | 32-bit Integer | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 698 | Motn Posit Cmmd Position command input from the Motion Planner. This is linked as the source to the interpolator's Course Position Target. | Default: 0 Min/Max: +/-2147483648 | | | | RO | 32-bit Integer | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 699 | Motn Speed Cmmd Speed command input from the Motion Planner. | Units: P.U. Default: 0.0000 Min/Max: +/-8.0000 pu | | | | RO | Real | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 700 | Motn Posit Sync Synchronization input signal from the Motion Planner. Pulse received once per coarse update period. This is linked as the course to Par 693 [Interp SynchInput]. Note: Bits 2 - 4 have been changed to "Reserved" for firmware version 2.04. | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <table><tr><th>Options</th><th>Reserved</th><th>Reserved</th><th>Reserved</th><th>Reserved</th><th>Reserved</th><th>Reserved</th><th>Reserved</th><th>Reserved</th><th>Reserved</th><th>Reserved</th><th>Reserved</th><th>Reserved</th><th>Reserved</th><th>Reserved</th><th>Reserved</th><th>Reserved</th><th>Reserved</th><th>Reserved</th><th>Reserved</th><th>Reserved</th><th>Reserved</th><th>Reserved</th><th>Reserved</th><th>Reserved</th><th>Reserved</th><th>Reserved</th><th>Reserved</th><th>Reserved</th><th>Reserved</th><th>Reserved</th><th>SyncDataActv</th><th>Sync Pulse</th></tr><tr><td>Default</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td></tr><tr><td>Bit</td><td>31</td><td>30</td><td>29</td><td>28</td><td>27</td><td>26</td><td>25</td><td>24</td><td>23</td><td>22</td><td>21</td><td>20</td><td>19</td><td>18</td><td>17</td><td>16</td><td>15</td><td>14</td><td>13</td><td>12</td><td>11</td><td>10</td><td>9</td><td>8</td><td>7</td><td>6</td><td>5</td><td>4</td><td>3</td><td>2</td><td>1</td><td>0</td></tr></table> <div>0 = False 1 = True</div> | | | | | | | | Options | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | SyncDataActv | Sync Pulse | Default | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | Bit | 31 | 30 | 29 | 28 | 27 | 26 | 25 | 24 | 23 | 22 | 21 | 20 | 19 | 18 | 17 | 16 | 15 | 14 | 13 | 12 | 11 | 10 | 9 | 8 | 7 | 6 | 5 | 4 | 3 | 2 | 1 | 0 |
| Options | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | SyncDataActv | Sync Pulse | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Default | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Bit | 31 | 30 | 29 | 28 | 27 | 26 | 25 | 24 | 23 | 22 | 21 | 20 | 19 | 18 | 17 | 16 | 15 | 14 | 13 | 12 | 11 | 10 | 9 | 8 | 7 | 6 | 5 | 4 | 3 | 2 | 1 | 0 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 701 | FdbkAxis FdbkSel Selection for the Motion Feedback Only Axis feedback source. Note: Options 5 and 6 are only available when compatible feedback option card is installed. Note: Bit 11 "SL Buff Rx10" was added for firmware version 4.001. | Default: 0 = "Encoder 0" Options: 0 = "Encoder 0" 6 = "FB Opt Port1" 1 = "Encoder 1" 7 = "SL DirIntRx0" 2 = "Reserved" 8 = "SL DirIntRx1" 3 = "Reserved" 9 = "SL DirIntRx2" 4 = "Motor Sim" 10 = "SL DirIntRx3" 5 = "FB Opt Port0" 11 = "SL Buff Rx10" | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 702 | FdbkAxis FdbkVal Present value of the selected feedback for the Motion Feedback Only Axis. | Default: 0 Min/Max: +/-2147483648 | | | | RO | 32-bit Integer | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 703 | Motn TP Select Selector for diagnostic Test point relating to Motion functionality. | Default: 0 = "SrvoAxisCnfgxe" Options: 0 = "SrvoAxisCnfg" 16 = "CST Upper" 1 = "SrvoAxisUnwd" 17 = "FBoNlyFbkRaw" 2 = "Marker Dist" 18 = "Reserved" 3 = "HomeEvent X" 19 = "I/O Rx Seq#" 4 = "Watch Posit" 20 = "I/O Rx Msg#" 5 = "Home Posit" 21 = "I/O Tx Msg#" 6 = "SrvoMRP Ofst" 22 = "Syn Rx Seq#" 7 = "SrvoAct Ofst" 23 = "Syn Rx Msg#" 8 = "PositRegis1" 24 = "Syn Tx Msg#" 9 = "PositRegis2" 25 = "Evt Rx Seq#" 10 = "FdbkAxisCnfg" 26 = "Evt Rx Msg#" 11 = "FdbkAxisUnwd" 27 = "Evt Tx Msg#" 12 = "FdbkMRP Ofst" 28 = "Asy Rx Seq#" 13 = "FdbkAct Ofst" 29 = "Asy Rx Msg#" 14 = "TimeEvntStat" 30 = "Asy Tx Msg#" 15 = "CST Lower" 31 = "Reset Msg#" | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 704 | Motn TP Value Data for diagnostic Test point relating to Motion functionality. | Default: 0 Min/Max: +/-2147483648 | | | | RO | 32-bit Integer | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 705 | Motn RotaryCmmd Position command input from the Motion Planner to the ServoAxis when configured in rotary mode. | Default: 0 Min/Max: 0/4294967295 | | | | RO | 32-bit Integer | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 706 | MotnUnwdTurnCmmd Position unwind turns command input from the Motion Planner to the Servo Axis when configured in rotary mode. | Default: 0 Min/Max: +/-32767 | | | | RO | 16-bit Integer | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 707 | SrvoAxis RotFdbk Position feedback output to the Motion Planner for the Servo Axis when configured in rotary mode. | Default: 0 Min/Max: 0/4294967295 | | | | RO | 32-bit Integer | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 708 | SrvoAxisUnwdFdbk Position unwind feedback output to the Motion Planner for the Servo Axis when configured in rotary mode. | Default: 0 Min/Max: +/-32767 | | | | RO | 16-bit Integer | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 709 | FdbkAxis RotFdbk Position feedback output to the Motion Planner for the Feedback Only Axis when configured in rotary mode. | Default: 0 Min/Max: 0/4294967295 | | | | RO | 32-bit Integer | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 710 | FdbkAxisUnwdFdbk Position unwind feedback output to the Motion Planner for the Feedback Only Axis when configured in rotary mode. | Default: 0 Min/Max: +/-32767 | | | | RO | 16-bit Integer | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

| No. | Name Description | Values | | Linkable | Read-Write | Data Type |
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| 711 | MotnCnfgErrParam Identifies a parameter that is not configured properly for a motion connection to be accepted. The parameter identified could either have a wrong value or an incorrect link. When bit 0 "Config OK" of Par 690 [Motn Cnct Status] is set, then this parameter contains the parameter number of an incorrectly configured parameter. If more than one parameter is incorrectly configured, each is displayed in turn after the previously identified parameter is fixed. If there are no configuration problems relating to Motion, then this parameter contains a value of zero and the bit 0 "Config OK" of parameter 690 [Motn Cnct Status] is cleared. | Default: 0 Min/Max: 0/65535 | | | RO | 16-bit Integer |
| 712 | Write Mask Act Status of write access for DPI ports. When bit 15 "Security" is set, network security controls the write mask instead of Par 669 [Write Mask]. Note: This parameter was added for firmware version 3.01. | | | | | |
| | Options | | | | | |
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| No. | Name Description | Values | | | Linkable | Read-Write | Data Type | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
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| 720 | PLL Control Phase Locked Loop Control. Bit 0 "Vel FdFwd En" - When set, enables the velocity feed forward path. When cleared, the feed forward path is disabled. Bit 1 "Ext Vel In" - When set, enables external velocity feed forward through Par 728 [PLL Ext Spd Ref]. When cleared, velocity feed forward is derived from the input device position. Bit 2 "Trcking AComp" - When set, provides an element of acceleration compensation to the feed forward branch. This is not recommended for use with external inputs because of increased noise. Note: This parameter was added for firmware version 3.01. Options <table><tr><td></td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Trcking HComp</td><td>Trcking AComp</td><td>Ext Vel In</td><td>Vel FdFwd En</td></tr><tr><td>Default</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td></tr><tr><td>Bit</td><td>15</td><td>14</td><td>13</td><td>12</td><td>11</td><td>10</td><td>9</td><td>8</td><td>7</td><td>6</td><td>5</td><td>4</td><td>3</td><td>2</td><td>1</td><td>0</td></tr></table> 0 = False 1 = True | | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | Trcking HComp | Trcking AComp | Ext Vel In | Vel FdFwd En | Default | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | Bit | 15 | 14 | 13 | 12 | 11 | 10 | 9 | 8 | 7 | 6 | 5 | 4 | 3 | 2 | 1 | 0 | | | | |
| | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | Trcking HComp | Trcking AComp | Ext Vel In | Vel FdFwd En | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Default | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Bit | 15 | 14 | 13 | 12 | 11 | 10 | 9 | 8 | 7 | 6 | 5 | 4 | 3 | 2 | 1 | 0 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 721 | PLL Position Ref Physical encoder position input. This parameter is normally linked directly to the encoder position of the device chosen for input to PLL. Note: This parameter was added for firmware version 3.01. | Default: 0.0 Min/Max: +/-2147483648 | | | ✓ | RW | 32-bit Integer | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 722 | PLL BandWidth Sets the internal bandwidth response of the PLL function in (rad/sec). The setting for very noisy mechanical systems could range from 1 to 10 (r/s) while well-behaved high line count input devices could range upwards of 100 (r/s). Higher bandwidths will quickly resolve tracking errors while the lower bandwidths will take longer to settle into a steady state. Some adjustment will be necessary to effect the best compromise between noise and tracking response. Note: This parameter was added for firmware version 3.01. | Units: R/S Default: 20.00 Min/Max: 0.00/8000.00 | | | ✓ | RW | Real | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 723 |  PLL Rev Input Revolution of the input encoder. This parameter must be coordinated with Par 724 [PLL Rev Out] to resolve the gear-ratio between input revolutions and output (virtual) revolutions. The ratio of input to output revolutions can always be resolved into integer values and should be reduced to their lowest common factor. Note: This parameter was added for firmware version 3.01. | Default: 1 Min/Max: +/- 1000000 | | | | RW | 32-bit Integer | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 724 |  PLL Rev Output Revolution of the output encoder. This parameter must be coordinated with Par 723 [PLL Rev In] to resolve the gear-ratio between input revolutions and output (virtual) revolutions. The ratio of input to output revolutions can always be resolved into integer values and should be reduced to their lowest common factor. Note: This parameter was added for firmware version 3.01. | Default: 1 Min/Max: 1/2000000 | | | | RW | 32-bit Integer | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 725 |  PLL EPR Input Edges Per Revolution of the physical input device. Use highest line count device possible to insure smoother PLL operation. Note: This parameter was added for firmware version 3.01. | Units: EPR Default: 1048576 Min/Max: 1/67108864 | | | | RW | 32-bit Integer | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 726 |  PLL EPR Output Edges Per Revolution of virtual the physical output device. Note: This parameter was added for firmware version 3.01. | Units: EPR Default: 1048576 Min/Max: 1/67108864 | | | | RW | 32-bit Integer | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 727 |  PLL VirtEncdrRPM RPM of the virtual output device. The value specified determines the 1 pu velocity at Par 734 [PLL Speed Out] and does not otherwise affect performance. Note: This parameter was added for firmware version 3.01. | Units: RPM Default: 1750.0 Min/Max: 1.0/30000.0 | | | | RW | Real | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 728 | PLL Ext Spd Ref External Speed Reference. This is a velocity feed forward input. It is normally linked to an external velocity reference or the velocity output of the chosen physical encoder. Note: This parameter was added for firmware version 3.01. | Units: P.U. Default: 0.0 Min/Max: +/-2200000000.0 | | | ✓ | RW | Real | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 729 | PLL Ext SpdScale External Speed Scale. This parameter is used to properly scale the velocity feed forward. Adjust for zero average at Par 733 [PLL FiltPositOut] while running at moderate speed. Note: This parameter was added for firmware version 3.01. | Default: 1.0 Min/Max: +/-2200000000.0 | | | ✓ | RW | Real | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 730 | PLL LPFilter BW Low Pass Filter BandWidth (BW). The filter has two functions: <ul style="list-style-type: none">Basic noise reduction of input velocity.Timed delay of input when feed forward is linked to an external master reference other than an input encoder. The filter BW should be set for best tracking which occurs when the filter output coincides with the Loop filter output of PLL. Usually that means setting its BW to the bandwidth of the master reference drive. Note: This parameter was added for firmware version 3.01. | Units: R/S Default: 50.00 Min/Max: 0.00/8000.00 | | | ✓ | RW | Real | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |


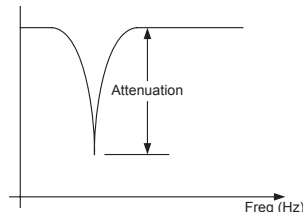
| No. | Name Description | Values | | | Linkable | Read-Write | Data Type |
|-----|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|--|----------|------------|----------------|
| 731 | PLL Posit Out Phased Locked Loop position output. This signal is precisely in phase with the input physical device. A link should be made to it from the local drive auxiliary position input. (The local drive is the one implementing PLL.) Note: This parameter was added for firmware version 3.01. | Default: 0 Min/Max: -/+2147483648 | | | | RO | 32-bit Integer |
| 732 | PLL Posit OutAdv Phased Locked Loop position advanced output. This signal is one position sample in advance of Par 731 [PLL Posit Out]. A link is normally made to this parameter from SynchLink. Note: This parameter was added for firmware version 3.01. | Default: 0 Min/Max: -/+2147483648 | | | | RO | 32-bit Integer |
| 733 | PLL FiltPositOut Phased Locked Loop internal low pass filter output. This parameter is normally used to properly scale an external velocity reference. See description of Par 729 [PLL Ext SpdScale]. Note: This parameter was added for firmware version 3.01. | Units: P.U. Default: 0.0 Min/Max: -/+2200000000.0 | | | ✓ | RW | Real |
| 734 | PLL Speed Out Phased Locked Loop velocity output. This signal is used as a velocity feed forward. It is precisely in phase with the physical input device. A link should be made to it from one of the inputs on the local drive. (The local drive is the one implementing PLL.) The 1 pu RPM of this parameter is set by Par 727 [PLL VirtEncdrRPM]. Note: This parameter was added for firmware version 3.01. | Units: P.U. Default: 0.0 Min/Max: -/+2200000000.0 | | | ✓ | RW | Real |
| 735 | PLL SpeedOut Adv Phase Locked Loop velocity advanced output. This signal is one velocity reference sample in advance of Par 734 [PLL Speed Out]. A link is normally made to this parameter from SynchLink. (Velocity reference is performed in the same task as the position regulator.) Note: This parameter was added for firmware version 3.01. | Units: P.U. Default: 0.0 Min/Max: -/+2200000000.0 | | | ✓ | RW | Real |
| 737 | Posit TP Select Enter or write a value to select position regulator data displayed in Par 738 [PositTP DataInt] and Par 739 [PositTP DataReal]. | Default: 0 = "Zero" Options: 0 = "Zero" 9 = "Limiter Out" 1 = "del Xos Vout" 10 = "Ref EGR In" 2 = "del Xcmd" 11 = "OffsetSpdLim" 3 = "del Act Load" 12 = "Pt-Pt SpdLim" 4 = "del Act Mtr" 13 = "Sec per Edge" 5 = "Integ Error" 14 = "Edge per Sec" 6 = "Xprop Out" 15 = "Ratio Guess" 7 = "Fdbk Sel Alt" 16 = "Sync Count" 8 = "PreLim Xvout" | | | | | |
| 738 | PositTP DataInt Displays the integer data selected by Par 737 [Posit TP Select]. This display should only be used if the selected value is Integer data. | Default: 0 Min/Max: -/+2147483648 | | | | RO | 32-bit Integer |
| 739 | PositTP DataReal Displays the real data selected by Par 737 [Posit TP Select]. This display should only be used if the selected value is Real data. | Default: 0.0 Min/Max: -/+8.0 pu | | | | RO | Real |

| No. | Name Description | Values | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
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| No. | Name Description | Values | | Linkable | Read-Write | Data Type |
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| 755 | Posit Offset Spd Sets the speed of position offset. A position offset command will not exceed this speed. The actual speed of offset is limited to a maximum value of $1/(\text{inertia} * \text{pos gain})$ so as not to cause a torque pulse greater than 1 per unit. The speed will change exponentially. | Units: RPM Default: 176.4000 Min/Max: -/+14112.0000 Scale: Par 4 [Motor NP RPM] = 1.0pu | | ✓ | RW | Real |
| 756 | X Offst SpdFilt Displays the output of a first order filter whose time response is shaped specifically to provide an output that represents the actual speed of offset correction. It may be used as a feed forward into speed reference to secure minimal position error during changes to offset. | Units: RPM Default: 0.0000 Min/Max: -/+14112.0000 Scale: Par 4 [Motor NP RPM] = 1.0pu | | | RO | Real |
| 757 | Abs Posit Offset Provides an offset to absolute position. Setting Par 740 [Position Control], bit 8 "Xzero Preset" presets Par 744 [PositRef EGR Out], Par 747 [Position Cmmnd], Par 763 [Position Actual] and Par 765 [Posit Actl Load] with the value in Par 762 [Position Fdbk] minus Par 757 [Abs Posit Offset] upon drive enable. | Default: 0 Min/Max: -/+2147483648 | | ✓ | RW | 32-bit Integer |
| 758 | Pt-Pt Posit Ref Provides position reference to the point to point position regulator, when the value in Par 742 [Position Ref Sel] = 2 "Pt to Pt". The initial value is latched upon position enable without causing movement. Subsequent changes to reference are relative to the latched position unless the position is re-referenced by Par 740 [Position Control], bit 10 "Pt-Pt ReRef". Position moves may be made within the limits of plus or minus 31 bits. Point-to-point reference may be changed, and even reversed, during a move. | Default: 0 Min/Max: -/+2147483648 | | ✓ | RW | 32-bit Integer |
| 759 | Pt-Pt Accel Time Acceleration time (sec) to base speed, active only in point to point mode. Acceleration to a relatively low speed may be exponential. | Units: Sec Default: 10.0000 Min/Max: 0.1000/6553.5000 | | ✓ | RW | Real |
| 760 | Pt-Pt Decel Time Deceleration time (sec) from base speed to zero, active only in point to point mode. Some tailing can be expected at the end of a move as the drive comes into command position. It is left to the user to select a time that does not place the drive in current or torque limit. Deceleration from relatively low speed may be exponential. | Units: Sec Default: 10.0000 Min/Max: 0.1000/6553.5000 | | ✓ | RW | Real |
| 761 | Pt-Pt Filt BW Sets the bandwidth of a low pass filter which affects smoothness at the start of deceleration in the point to point mode. A high filter bandwidth will produce a more square deceleration torque, one with a higher level of jerk. Typical values range from 5 to 100 (rad/sec). A zero value will bypass the filter. Tail-out is influenced mainly by Par 768 [Posit Reg P Gain]. | Units: R/S Default: 25.0000 Min/Max: 0.0000/500.0000 | | ✓ | RW | Real |
| 762 | Position Fdbk Displays the accumulated pulse count of the selected position feedback. Select a position feedback device with Par 777 [PositionFdbk Sel]. | Default: 0 Min/Max: -/+2147483648 | | | RO | 32-bit Integer |
| 763 | Position Actual Displays the accumulated motor position as a 32-bit integer. It tracks Par 762 [Position Fdbk]. When the position regulator is not enabled, this parameter is initialized to Par 762 [Position Fdbk] or to the selected position reference as determined by Par 740 [Position Control], bit 6 "AbsPositCtrl". | Default: 0 Min/Max: -/+2147483648 | | | RO | 32-bit Integer |
| 764 | Posit Load Fdbk Tracks the load position, as a 32-bit integer. When a gear box connects the load to the motor, Par 766 [Posit FB EGR Mul] and Par 767 [Posit FB EGR Div] must be set to account for the gear ratio. Set Par 766 [Posit FB EGR Mul] equal to Par 767 [Posit FB EGR Div] if the load is directly connected to the motor. | Default: 0 Min/Max: -/+2147483648 | | ✓ | RW | 32-bit Integer |
| 765 | Posit Actl Load Holds the accumulated output of the Load Gear Ratio as a 32-bit integer and forms the primary feedback for the position regulator integral channel. It is very important that the load gear ratio be precisely set such that the delta pulse count of one motor revolution equals the delta pulse count of this parameter. When the position regulator is not enabled, this parameter is initialized to Par 762 [Position Fdbk] or to the selected position reference as determined by Par 740 [Position Control], bit 6 "AbsPositCtrl". | Default: 0 Mi/Max: -/+2147483648 | | | RO | 32-bit Integer |
| 766 | Posit FB EGR Mul A 32-bit integer in the numerator of the load EGR function. It is multiplied by Par 764 [Posit Load Fdbk] and divided by Par 767 [Posit FB EGR Div] to reflect the load pulse count to the motor (effectively removing the gear box ratio). The accumulated position values Par 763 [Position Actual] and Par 765 [Posit Actl Load] will be equal if the ratio is set properly. There may be some difference due to lost motion in the gear train, but there should not be an accumulated difference. It is often necessary to count gear teeth as gear box manufacturers often approximate exact ratios with decimal numbers. Enter a negative value in the numerator to account for reversed motor rotation. | Default: 1 Min/Max: -/+1000000 | | ✓ | RW | 32-bit Integer |
| 767 | Posit FB EGR Div This is a 32-bit integer that forms the denominator of the load EGR function. | Default: 1 Min/Max: 1/2000000 | | | RW | 32-bit Integer |
| 768 | PositReg P Gain Sets position regulator gain as measured from position error to speed reference. The gain number is identically equal to position regulator bandwidth in rad/sec. For example: A gain of 10 means that a per unit position error of 0.1 sec. will effect a 1.0 pu speed change (1 per unit position error is the distance traveled in 1 sec. at base motor speed). The maximum value of this parameter is typically 1/3 of the speed bandwidth (rad/sec) but may be set considerably higher with careful tuning of the speed regulator output lead/lag filter. | Units: R/S Default: 4.0000 Min/Max: 0.0000/200.0000 | | ✓ | RW | Real |

| No. | Name Description | Values | | Linkable | Read-Write | Data Type |
|-----|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|----------|------------|----------------|
| 769 | Position Error Actual position error in motor pulse counts. When the position regulator is not enabled, this 32-bit integer register is initialized to zero. When the position regulator is enabled, this parameter contains the running value of position error, often referred to as "following error". | Default: 0 Min/Max: -/+2147483648 | | | RO | 32-bit Integer |
| 770 | PositReg Integ Sets position regulator integral gain as measured from position error to velocity reference. It has gain units of (per unit velocity/sec) / (per unit position) and is unit compatible with Par 768 [PositReg P Gain]. An integral gain of 25 means that a per unit position error of 0.1 sec will effect a 2.5 pu speed change per sec. A typical maximum value is $\frac{1}{[\text{PositReg P Gain}]^2}$. Note: 1 per unit position is the distance traveled in 1 sec. at base motor speed. | Units: /S2 Default: 4.0000 Min/Max: 0.0000/1000.0000 | | ✓ | RW | Real |
| 771 | PositReg Droop Position Droop limits the low frequency gain of the position regulators integral channel to a value of (1/droop). It provides a means to fine tune the stability for load mounted feedback devices where lost motion may cause a problem. Typically, position droop will have a value that is less than (1/position gain), perhaps even zero for tightly coupled loads. Position droop has a gain value of (per unit position) / (per unit speed). Note: 1 per unit position is the distance traveled in 1 sec. at base motor speed. | Default: 0.0000 Min/Max: 0.0000/0.2500 | | ✓ | RW | Real |
| 772 | XReg Integ LoLim The negative limit of the position regulator integral gain. | Units: RPM Default: -176.4000 Min/Max: -14112.0000/0.0000 Scale: Par 4 [Motor NP RPM] = 1.0pu | | ✓ | RW | Real |
| 773 | XReg Integ HiLim The positive limit of the position regulator integral gain. | Units: RPM Default: 176.4000 Min/Max: 0.0000/14112.0000 Scale: Par 4 [Motor NP RPM] = 1.0pu | | ✓ | RW | Real |
| 774 | XReg Integ Out The output of the position regulator integral channel after application of the limits. This output is set to zero if the integral gain is set to zero or the integrator is not enabled. | Units: RPM Default: 0 Min/Max: -/+14112.0000 Scale: Par 4 [Motor NP RPM] = 1.0pu | | | RO | Real |
| 775 | XReg Spd LoLim The negative speed limit of total position regulator output. Point to point mode uses this parameter to set the reverse speed reference. | Units: RPM Default: -176.4000 Min/Max: -14112.0000/0.0000 Scale: Par 4 [Motor NP RPM] = 1.0pu | | ✓ | RW | Real |
| 776 | XReg Spd HiLim The positive speed limit of total position regulator output. Point to point mode uses this parameter to set the forward speed reference. | Units: RPM Default: 176.4000 Min/Max: 0.0000/14112.0000 Scale: Par 4 [Motor NP RPM] = 1.0pu | | ✓ | RW | Real |
| 777 | PositionFdbk Sel  Enter a value to select the position control feedback device. The feedback device used for position control may be an independent selection from the motor speed control feedback device in Par 222 [Mtr Fdbk Sel Pri] or Par 223 [Mtr Fdbk Sel Alt]. If the position feedback is to be the same as the motor feedback, select option 3 "Motor Fdbk". This option will set the selected feedback of Par 222 [Motor Fdbk Sel Pri] or Par 223 [Mtr Fdbk Sel Alt] as the position regulators position feedback. Notes: Options 5 and 6 are only available when compatible feedback option card is installed. This parameter was changed to non-linkable for firmware version 3.01. | Default: 0 = "Encoder 0" Options: 0 = "Encoder 0" 7 = "SL DirIntRx0" 1 = "Encoder 1" 8 = "SL DirIntRx1" 2 = "Reserved" 9 = "SL DirIntRx2" 3 = "Mtr Fdbk Pri" 10 = "SL DirIntRx3" 4 = "Motor Sim" 5 = "FB Opt Port0" 6 = "FB Opt Port1" | | | | |
| 778 | X Notch Attenu Sets the depth for the Position Notch Filter. Attenuation is the ratio of the output to the input at the notch frequency. An attenuation of 30 means that the notch output is 1/30th of the input at the specified frequency. Calculation: Attenuation = Input / Output  | Default: 50 Min/Max: 0/500 | | ✓ | RW | Real |
| 779 | X Notch FiltFreq Sets the center frequency of the Position Notch Filter. | Units: Hz Default: 0.0 Min/Max: 0.0/500.0 | | ✓ | RW | Real |
| 780 | PositDect1 Stpt Provides the set point for Position Watch 1. Position Watch 1 is enabled and configured with Par 740 [Position Control] bits 16 & 17. Position Watch 1 compares this value with Par 784 [Posit Dect1 In] and sets bit 8 "Posit Watch1" of Par 741 [Position Status] when the appropriate condition is satisfied. | Default: 0 Min/Max: -/+2147483648 | | ✓ | RW | 32-bit Integer |

[illegible]

| No. | Name Description | Values | | | Linkable | Read-Write | Data Type | | | | | | | | | | | | | | | | | | |
|--------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------|----------------------------------|-------|------------------------------------------|------------|----------------|--------------------------------------------|-------------------------|----|------------------------------------------------------------|------------|------------------|--------------|-------------|---------------------------|--------------|---------------|--------------------------|-------------------------------------------------------|--|--|--|----|------|
| 793 | Xsync In 3 32-bit integer input of the Sync Generator. Latched to Par 794 [Xsync Out 3]. Link any 32-bit integer parameter to this input parameter. Note: This parameter was changed to an unsigned integer data type and linkable to parameters that are either real or integer values for firmware version 4.001. | Default: 0 Min/Max: 0/4294967295 | | | ✓ | RW | 32-bit Integer | | | | | | | | | | | | | | | | | | |
| 794 | Xsync Out 3 Sync Generator 32-bit output register. Latched to Par 793 [Xsync In 3] every time bit 0 "Sync Pulse" of Par 786 [Xsync Status] is set. Note: This parameter was changed to an unsigned integer data type and linkable to parameters that are either real or integer values for firmware version 4.001. | Default: 0 Min/Max: 0/4294967295 | | | ✓ | RW | 32-bit Integer | | | | | | | | | | | | | | | | | | |
| 795 | Xsync Out 3 Dly Displays data of Par 794 [Xsync Out 3] from the last sync period. Note: This parameter was changed to an unsigned integer data type and linkable to parameters that are either real or integer values for firmware version 4.001. | Default: 0 Min/Max: 0/4294967295 | | | ✓ | RW | 32-bit Integer | | | | | | | | | | | | | | | | | | |
| 796 |  Posit Gear Ratio Sets the load side gear ratio for position control. Adjust this value when the selection of Par 777 [PositionFdbk Sel] is not 3 "Motor Fdbk". Calculation: Motor Encoder (Rpm) / Load Encoder (Rpm) Note: This parameter was changed to non-linkable for firmware version 3.01. This parameter was changed to be linkable for firmware version 3.04. | Default: 1.00 Min/Max: 0.00/9999.00 | | | ✓ | RW | Real | | | | | | | | | | | | | | | | | | |
| 797 | BasicIndx Step Sets the amount added to or subtracted from Par 799 [BasicIndx Output] on a rising edge of Par 740 [Position Control], bit 12 "BscIndx Step". Note that this value can be positive or negative. | Default: 0 Min/Max: -/+2147483648 | | | ✓ | RW | 32-bit Integer | | | | | | | | | | | | | | | | | | |
| 798 | BasicIndx Preset Sets the value to be moved into Par 799 [BasicIndx Output] when Par 740 [Position Control], bit 11 "BscIndx Enbl" and bit 14 "BscIndx Prst" are both on. | Default: 0 Min/Max: -/+2147483648 | | | ✓ | RW | 32-bit Integer | | | | | | | | | | | | | | | | | | |
| 799 |  BasicIndx Output Displays the output of the Position Index function. | Default: 0 Min/Max: -/+2147483648 | | | | RO | 32-bit Integer | | | | | | | | | | | | | | | | | | |
| 800 | Anlg In1 Data Displays the scaled final value for Analog Input 1. | Default: 0.0000 Min/Max: -/+2200000000.0000 | | | | RO | Real | | | | | | | | | | | | | | | | | | |
| 801 | Anlg In1 Value Displays the actual input value at Analog Input 1. Analog Input 1 may be configured for voltage or current input signal. For proper selection of the input signal, the DIP switch S-5 and Par 821 [Analog I/O Units] must be set to match. Par 801 [Anlg In1 Value] is multiplied by the value in Par 802 [Anlg In1 Scale] to produce the input to the lead lag filter function. <table><tr><td>Type of Input:</td><td colspan="2">Configurable, Voltage or Current</td></tr><tr><td>Polarity:</td><td colspan="2">Bi-Polar</td></tr><tr><td>Resolution:</td><td colspan="2">14 bit (-8191 to +8191)</td></tr><tr><td></td><td>DIP Switch</td><td>Analog I/O Units</td></tr><tr><td>AI 1 Voltage</td><td>S5-2 = Open</td><td>Par 821 Bit 0 = 0 (False)</td></tr><tr><td>AI 1 Current</td><td>S5-2 = Closed</td><td>Par 821 Bit 0 = 1 (True)</td></tr></table> | Type of Input: | Configurable, Voltage or Current | | Polarity: | Bi-Polar | | Resolution: | 14 bit (-8191 to +8191) | | | DIP Switch | Analog I/O Units | AI 1 Voltage | S5-2 = Open | Par 821 Bit 0 = 0 (False) | AI 1 Current | S5-2 = Closed | Par 821 Bit 0 = 1 (True) | Units: V/mA Default: 0.0000 Min/Max: -/+20.0000 | | | | RO | Real |
| Type of Input: | Configurable, Voltage or Current | | | | | | | | | | | | | | | | | | | | | | | | |
| Polarity: | Bi-Polar | | | | | | | | | | | | | | | | | | | | | | | | |
| Resolution: | 14 bit (-8191 to +8191) | | | | | | | | | | | | | | | | | | | | | | | | |
| | DIP Switch | Analog I/O Units | | | | | | | | | | | | | | | | | | | | | | | |
| AI 1 Voltage | S5-2 = Open | Par 821 Bit 0 = 0 (False) | | | | | | | | | | | | | | | | | | | | | | | |
| AI 1 Current | S5-2 = Closed | Par 821 Bit 0 = 1 (True) | | | | | | | | | | | | | | | | | | | | | | | |
| 802 | Anlg In1 Scale Scales the range of Analog Input 1 to the range of Par 800 [Anlg In1 Data]. Enter the units you want per volt or mA. For example: If Par 801 [Anlg In1 Value] = 0 - 10V and you enter "6" in this parameter, Par 800 [Anlg In1 Data] will equal 0 - 60V. Par 801 * Par 802 = Par 800 . | Units: V or /mA Default: 0.1000 Min/Max: -/+2200000000.0000 | | | ✓ | RW | Real | | | | | | | | | | | | | | | | | | |
| 803 | Anlg In1 Offset Applies an offset to Analog Input 1. Use the offset to correct for zero signal errors or to create an offset to the actual input. The output of the A/D converter is summed with this parameter to produce Par 801 [Anlg In1 Value]. | Units: V/mA Default: 0.0000 Min/Max: -/+20.0000 | | | ✓ | RW | Real | | | | | | | | | | | | | | | | | | |
| 804 | AI 1 Filt Gain Provides the Lead term for the Analog Input 1 filter. | Default: 1.0000 Min/Max: -/+5.0000 | | | ✓ | RW | Real | | | | | | | | | | | | | | | | | | |
| 805 | Anlg In1 Filt BW Provides the Lag term for the Analog Input 1 filter. <table><tr><td></td><td>Light</td><td>Heavy</td></tr><tr><td>Par 804 [AI 1 Filt Gain]</td><td>0.25</td><td>0.1</td></tr><tr><td>Par 805 [Anlg In1 Filt BW]</td><td>50</td><td>10</td></tr></table> | | Light | Heavy | Par 804 [AI 1 Filt Gain] | 0.25 | 0.1 | Par 805 [Anlg In1 Filt BW] | 50 | 10 | Units: R/S Default: 0.0000 Min/Max: 0.0000/3760.0000 | | | ✓ | RW | Real | | | | | | | | | |
| | Light | Heavy | | | | | | | | | | | | | | | | | | | | | | | |
| Par 804 [AI 1 Filt Gain] | 0.25 | 0.1 | | | | | | | | | | | | | | | | | | | | | | | |
| Par 805 [Anlg In1 Filt BW] | 50 | 10 | | | | | | | | | | | | | | | | | | | | | | | |

| No. | Name Description | Values | | | Linkable | Read-Write | Data Type | | | | | | | | | | | | | | | | | |
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| 806 | Anlg In2 Data Displays the scaled final value for Analog Input 2. | Default: 0.0000 Min/Max: -/+2200000000.0000 | | | | RO | Real | | | | | | | | | | | | | | | | | |
| 807 | Anlg In2 Value Displays the actual input value at Analog Input 2. Analog Input 2 may be configured for voltage or current input signal. For proper selection of the input signal, the DIP switch S-5 and Par 821 [Analog I/O Units] must be set to match. Par 807 [Anlg In2 Value] is multiplied by Par 808 [Anlg In2 Scale] produce the input to the lead lag filter function. <table><tr><td>Type of Input:</td><td colspan="2">Configurable, Voltage or Current</td></tr><tr><td>Polarity:</td><td colspan="2">Bi-Polar</td></tr><tr><td>Resolution:</td><td colspan="2">14 bit (-8191 to +8191)</td></tr><tr><td></td><td>DIP Switch</td><td>Analog I/O Units</td></tr><tr><td>AI 2 Voltage</td><td>S5-1 = Open</td><td>Par 821 Bit 1 = 0 (False)</td></tr><tr><td>AI 2 Current</td><td>S5-1 = Closed</td><td>Par 821 Bit 1 = 1 (True)</td></tr></table> | Type of Input: | Configurable, Voltage or Current | | Polarity: | Bi-Polar | | Resolution: | 14 bit (-8191 to +8191) | | | DIP Switch | Analog I/O Units | AI 2 Voltage | S5-1 = Open | Par 821 Bit 1 = 0 (False) | AI 2 Current | S5-1 = Closed | Par 821 Bit 1 = 1 (True) | Units: V/mA Default: 0.0000 Min/Max: -/+20.0000 | | | RO | Real |
| Type of Input: | Configurable, Voltage or Current | | | | | | | | | | | | | | | | | | | | | | | |
| Polarity: | Bi-Polar | | | | | | | | | | | | | | | | | | | | | | | |
| Resolution: | 14 bit (-8191 to +8191) | | | | | | | | | | | | | | | | | | | | | | | |
| | DIP Switch | Analog I/O Units | | | | | | | | | | | | | | | | | | | | | | |
| AI 2 Voltage | S5-1 = Open | Par 821 Bit 1 = 0 (False) | | | | | | | | | | | | | | | | | | | | | | |
| AI 2 Current | S5-1 = Closed | Par 821 Bit 1 = 1 (True) | | | | | | | | | | | | | | | | | | | | | | |
| 808 | Anlg In2 Scale Scales the range of Analog Input 2 to the range of Par 806 [Anlg In2 Data]. Enter the units you want per volt or mA. For example: If Par 807 [Anlg In2 Value] = 0 - 10V and you enter "6" in this parameter, Par 806 [Anlg In2 Data] will equal 0 - 60V. Par 807 * Par 808 = Par 806. | Units: /V or /mA Default: 0.1000 Min/Max: -/+2200000000.0000 | | | ✓ | RW | Real | | | | | | | | | | | | | | | | | |
| 809 | Anlg In2 Offset Applies an offset to Analog Input 2. Use the offset to correct for zero signal errors or to create an offset to the actual input. The output of the A/D converter is summed with this parameter to produce Par 807 [Anlg In2 Value]. | Units: V/mA Default: 0.0000 Min/Max: -/+20.0000 | | | ✓ | RW | Real | | | | | | | | | | | | | | | | | |
| 810 | AI 2 Filt Gain Provides the Lead term for the Analog Input 2 filter. | Default: 1.0000 Min/Max: -/+5.0000 | | | ✓ | RW | Real | | | | | | | | | | | | | | | | | |
| 811 | Anlg In2 Filt BW Sets the frequency for the Analog Input 2 filter. <table><tr><td></td><td>Light</td><td>Heavy</td></tr><tr><td>Par 810 [AI 2 Filt Gain]</td><td>0.25</td><td>0.1</td></tr><tr><td>Par 811 [Anlg In2 Filt BW]</td><td>50</td><td>10</td></tr></table> | | Light | Heavy | Par 810 [AI 2 Filt Gain] | 0.25 | 0.1 | Par 811 [Anlg In2 Filt BW] | 50 | 10 | Units: R/S Default: 0.0000 Min/Max: 0.0000/3760.0000 | | | ✓ | RW | Real | | | | | | | | |
| | Light | Heavy | | | | | | | | | | | | | | | | | | | | | | |
| Par 810 [AI 2 Filt Gain] | 0.25 | 0.1 | | | | | | | | | | | | | | | | | | | | | | |
| Par 811 [Anlg In2 Filt BW] | 50 | 10 | | | | | | | | | | | | | | | | | | | | | | |
| 812 | Anlg In3 Data Displays the scaled final value for Analog Input 3. | Default: 0.0000 Min/Max: -/+2200000000.0000 | | | | RO | Real | | | | | | | | | | | | | | | | | |
| 813 | Anlg In3 Value Displays the actual input value at Analog Input 3. Analog Input 3 is a uni-polar voltage input only and cannot be configured for current. Type of Input = Voltage Polarity = Uni-Polar Resolution = 10 bit (0 to +1023) Note: When bit 2 "AI3 Thermstr" of Par 821 [Analog I/O Units] is set (= 1), this parameter cannot be viewed from the HIM. | Units: Volts Default: 0.0000 Min/Max: 0.0/10.0 | | | | RO | Real | | | | | | | | | | | | | | | | | |
| 814 | Anlg In3 Scale Scales the raw analog input data plus the input offset (if any) to the desired data range. The scaled data for Analog Input 3 is displayed in Par 812 [Anlg In3 Data] and is available for usage in the drive. Enter the units you want per volt. For example: If Par 813 [Anlg In3 Value] = 0 - 10V and you enter "6" in this parameter, Par 812 [Anlg In3 Data] will equal 0 - 60V. Par 813 * Par 814 = Par 812. Note: When bit 2 "AI3 Thermstr" of Par 821 [Analog I/O Units] is set (= 1), this parameter cannot be viewed from the HIM. | Units: /Volts Default: 0.1000 Min/Max: -/+2200000000.0000 | | | ✓ | RW | Real | | | | | | | | | | | | | | | | | |
| 815 | Anlg In3 Offset Applies an offset to Analog Input 3. Use the offset to correct for zero signal errors or to create an offset to the actual input. The output of the A/D converter is summed with this parameter to produce Par 813 [Anlg In3 Value]. Note: When bit 2 "AI3 Thermstr" of Par 821 [Analog I/O Units] is set (= 1), this parameter cannot be viewed from the HIM. | Units: Volts Default: 0.0000 Min/Max: -/+20.0 | | | ✓ | RW | Real | | | | | | | | | | | | | | | | | |
| 816 | AI 3 Filt Gain Provides the Lead term for the Analog Input 3 filter. Note: When bit 2 "AI3 Thermstr" of Par 821 [Analog I/O Units] is set (= 1), this parameter cannot be viewed from the HIM. | Default: 1.0000 Min/Max: -/+5.0 | | | ✓ | RW | Real | | | | | | | | | | | | | | | | | |

| No. | Name Description | Values | | | | Linkable | Read-Write | Data Type | | | | | | | | | | | | | |
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| 825 | <div><div><div>Dig In1 Sel</div><div>Enter a value to select the function of digital input 1. Selecting options 34 "UserGen Sel0" - 37 "UserGen Sel3" sends Binary Coded Decimal (BCD) data to Par 1022 [Sel Switch Ctrl] as follows:</div><table><thead><tr><th>Selection</th><th>Sends Input to this bit in Par 1022</th></tr></thead><tbody><tr><td>34 "UserGen Sel0"</td><td>Bit 1 "Sel Switch 00"</td></tr><tr><td>35 "UserGen Sel1"</td><td>Bit 2 "Sel Switch 01"</td></tr><tr><td>36 "UserGen Sel2"</td><td>Bit 3 "Sel Switch 02"</td></tr><tr><td>37 "UserGen Sel3"</td><td>Bit 4 "Sel Switch 03"</td></tr></tbody></table><div>Note: For all Stop Functions: Low = Stop, High = OK to Run, In "Norm Stop-CF" Low = Normal Stop and Clear Fault.</div><div>Note: When Using the MAH instruction in DriveLogix to "home" an axis and Digital Input 1 is used as the homing switch, this parameter must be set to 0 "Not Used". When the MAH instruction is executed, this parameter will be changed to option 31 "Regis 1 Ltch", to indicate that the drive registration has latched the encoder position when the switch was activated.</div><div>Note: Option 38 "ExtFault Inv" was added for firmware version 2.04. Option 39 "Home Switch" was added for firmware version 3.01. Values 41 and 42 were added for firmware version 4.001.</div></div></div> <div><div>Default:</div><div>Options:</div></div> <div><div>0 = "Not Used"</div><div>0 = "Not Used"</div><div>1 = "Enable"</div><div>2 = "Clear Faults"</div><div>3 = "Ext Fault"</div><div>4 = "Norm Stop-CF"</div><div>5 = "Start"</div><div>6 = "Reverse"</div><div>7 = "Run"</div><div>8 = "Reserved"</div><div>9 = "Reserved"</div><div>10 = "Jog 1"</div><div>11 = "Reserved"</div><div>12 = "Reserved"</div><div>13 = "Jog 2"</div><div>14 = "Normal Stop"</div><div>15 = "Spd Ref Sel0"</div><div>16 = "Spd Ref Sel1"</div><div>17 = "Spd Ref Sel2"</div><div>18 = "CurLim Stop"</div><div>19 = "Coast Stop"</div><div>20 = "Accel Decel2"</div><div>21 = "Indx Step"</div><div>22 = "Indx StepRev"</div><div>23 = "MOP Inc"</div><div>24 = "MOP Dec"</div><div>25 = "MOP Reset"</div><div>26 = "PI Trim En"</div><div>27 = "PI Trim Hold"</div><div>28 = "PI Trim Rst"</div><div>29 = "Trend Trig"</div><div>30 = "PreCharge En"</div><div>31 = "Regis 1 Ltch"</div><div>32 = "+Hrd OvrTrvl"</div><div>33 = "-Hrd OvrTrvl"</div><div>34 = "UserGen Sel0"</div><div>35 = "UserGen Sel1"</div><div>36 = "UserGen Sel2"</div><div>37 = "UserGen Sel3"</div><div>38 = "ExtFault Inv"</div><div>39 = "Home Switch"</div><div>41 = "Find Home"</div><div>42 = "Return Home"</div></div> <tr><td>826</td><td><div><div><div>Dig In2 Sel</div><div>Enter a value to select the function of digital input 2. Refer to Par 825 for a description of options 34 "UserGen Sel0" - 37 "UserGen Sel3".</div><div>Note: For all Stop Functions: Low = Stop, High = OK to Run, In "Norm Stop-CF" Low = Normal Stop and Clear Fault.</div><div>Notes: Option 38 "ExtFault Inv" was added for firmware version 2.04. Option 39 "Home Switch" was added for firmware version 3.01. 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| Selection | Sends Input to this bit in Par 1022 | | | | | | | | | | | | | | | | | | | | |
| 34 "UserGen Sel0" | Bit 1 "Sel Switch 00" | | | | | | | | | | | | | | | | | | | | |
| 35 "UserGen Sel1" | Bit 2 "Sel Switch 01" | | | | | | | | | | | | | | | | | | | | |
| 36 "UserGen Sel2" | Bit 3 "Sel Switch 02" | | | | | | | | | | | | | | | | | | | | |
| 37 "UserGen Sel3" | Bit 4 "Sel Switch 03" | | | | | | | | | | | | | | | | | | | | |
| 826 | <div><div><div>Dig In2 Sel</div><div>Enter a value to select the function of digital input 2. Refer to Par 825 for a description of options 34 "UserGen Sel0" - 37 "UserGen Sel3".</div><div>Note: For all Stop Functions: Low = Stop, High = OK to Run, In "Norm Stop-CF" Low = Normal Stop and Clear Fault.</div><div>Notes: Option 38 "ExtFault Inv" was added for firmware version 2.04. Option 39 "Home Switch" was added for firmware version 3.01. 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| 829 | <div><div><div>Dig In5 Sel</div><div>Enter a value to select the function of digital input 5.</div></div></div> <div><div>Default:</div><div>Options:</div></div> <div><div>0 = "Not Used"</div><div>0 = "Not Used"</div><div>1 = "Enable"</div><div>2 = "Clear Faults"</div><div>3 = "Ext Fault"</div><div>4 = "Norm Stop-CF"</div><div>5 = "Start"</div><div>6 = "Reverse"</div><div>7 = "Run"</div><div>8 = "Reserved"</div><div>9 = "Reserved"</div><div>10 = "Jog 1"</div><div>11 = "Reserved"</div><div>12 = "Reserved"</div><div>13 = "Jog 2"</div><div>14 = "Normal Stop"</div><div>15 = "Spd Ref Sel0"</div><div>16 = "Spd Ref Sel1"</div><div>17 = "Spd Ref Sel2"</div><div>18 = "CurLim Stop"</div><div>19 = "Coast Stop"</div><div>20 = "Accel Decel2"</div><div>21 = "Indx Step"</div><div>22 = "Indx StepRev"</div><div>23 = "MOP Inc"</div><div>24 = "MOP Dec"</div><div>25 = "MOP Reset"</div><div>26 = "PI Trim En"</div><div>27 = "PI Trim Hold"</div><div>28 = "PI Trim Rst"</div><div>29 = "Trend Trig"</div><div>30 = "PreCharge En"</div><div>31 = "Reserved"</div><div>32 = "+Hrd OvrTrvl"</div><div>33 = "-Hrd OvrTrvl"</div><div>34 = "UserGen Sel0"</div><div>35 = "UserGen Sel1"</div><div>36 = "UserGen Sel2"</div><div>37 = "UserGen Sel3"</div><div>38 = "ExtFault Inv"</div><div>39 = "Reserved"</div><div>41 = "Find Home"</div><div>42 = "Return Home"</div></div> <tr><td>830</td><td><div><div><div>Dig In6 Sel</div><div>Enter a value to select the function of digital input 6. 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| No. | Name Description | Values | | | Linkable | Read-Write | Data Type | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
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-------------------------------------------------------------------------------------------------------------|--|--|--|--|
| 831 | Anlg Out1 Sel Identifies the signal used on Analog Output 1. If the desired signal is not available in the selection list, choose option 0 - "User Select" and link with Par 832 [Anlg Out1 DInt] or Par 833 [Anlg Out1 Real] to select the desired parameter for output. The following table provides the parameter that corresponds to the option selected in this parameter. <table><tr><th>Option</th><th>Parameter</th><th>Option</th><th>Parameter</th></tr><tr><td>1 "Output Freq"</td><td>310 [Output Freq]</td><td>16 "MtrTrqCurRef"</td><td>305 [Mtr Trq Curr Ref]</td></tr><tr><td>2 "Sel Spd Ref"</td><td>40 [Selected Spd Ref]</td><td>17 "Speed Ref"</td><td>301 [Motor Speed Ref]</td></tr><tr><td>3 "Output Curr"</td><td>308 [Output Current]</td><td>18 "Speed Fdbk"</td><td>71 [Filtered SpdFdbk]</td></tr><tr><td>4 "Trq Cur (Iq)"</td><td>499 [Trq Cur Fdbk (Iq)]</td><td>19 "Torque Est"</td><td>471 [Estimated Torque]</td></tr><tr><td>5 "% Motor Flux"</td><td>309 [% Motor Flux]</td><td>20 "Scl Spd Fdbk"</td><td>72 [Scaled Spd Fdbk]</td></tr><tr><td>6 "Output Power"</td><td>311 [Output Power]</td><td>21 "RampedSpdRef"</td><td>43 [Ramped Spd Ref]</td></tr><tr><td>7 "Output Volts"</td><td>307 [Output Voltage]</td><td>22 "Spd Reg Out"</td><td>101 [SpdReg Integ Out]</td></tr><tr><td>8 "DC Bus Volts"</td><td>306 [DC Bus Voltage]</td><td>23 "MOP Level"</td><td>1090 [MOP Level Real]</td></tr><tr><td>9 "PI Reference"</td><td>181 [PI Reference]</td><td>24 "Trend 1 DInt"</td><td>572 [Trend Out1 DInt]</td></tr><tr><td>10 "PI Feedback"</td><td>182 [PI Feedback]</td><td>25 "Trend 1 Real"</td><td>573 [Trend Out1 Real]</td></tr><tr><td>11 "PI Error"</td><td>183 [PI Error]</td><td>26 "Trend 2 DInt"</td><td>576 [Trend Out2 DInt]</td></tr><tr><td>12 "PI Output"</td><td>180 [PI Output]</td><td>27 "Trend 2 Real"</td><td>577 [Trend Out2 Real]</td></tr><tr><td>15 "Motor TrqRef"</td><td>303 [Motor Torque Ref]</td><td></td><td></td></tr></table> | Option | Parameter | Option | Parameter | 1 "Output Freq" | 310 [Output Freq] | 16 "MtrTrqCurRef" | 305 [Mtr Trq Curr Ref] | 2 "Sel Spd Ref" | 40 [Selected Spd Ref] | 17 "Speed Ref" | 301 [Motor Speed Ref] | 3 "Output Curr" | 308 [Output Current] | 18 "Speed Fdbk" | 71 [Filtered SpdFdbk] | 4 "Trq Cur (Iq)" | 499 [Trq Cur Fdbk (Iq)] | 19 "Torque Est" | 471 [Estimated Torque] | 5 "% Motor Flux" | 309 [% Motor Flux] | 20 "Scl Spd Fdbk" | 72 [Scaled Spd Fdbk] | 6 "Output Power" | 311 [Output Power] | 21 "RampedSpdRef" | 43 [Ramped Spd Ref] | 7 "Output Volts" | 307 [Output Voltage] | 22 "Spd Reg Out" | 101 [SpdReg Integ Out] | 8 "DC Bus Volts" | 306 [DC Bus Voltage] | 23 "MOP Level" | 1090 [MOP Level Real] | 9 "PI Reference" | 181 [PI Reference] | 24 "Trend 1 DInt" | 572 [Trend Out1 DInt] | 10 "PI Feedback" | 182 [PI Feedback] | 25 "Trend 1 Real" | 573 [Trend Out1 Real] | 11 "PI Error" | 183 [PI Error] | 26 "Trend 2 DInt" | 576 [Trend Out2 DInt] | 12 "PI Output" | 180 [PI Output] | 27 "Trend 2 Real" | 577 [Trend Out2 Real] | 15 "Motor TrqRef" | 303 [Motor Torque Ref] | | | Default: 17 = "Speed Fdbk" Options: 0 = "User Select" 14 = "Reserved" 1 = "Output Freq" 15 = "Motor TrqRef" 2 = "Sel Spd Ref" 16 = "MtrTrqCurRef" 3 = "Output Curr" 17 = "Speed Ref" 4 = "Trq Cur (Iq)" 18 = "Speed Fdbk" 5 = "% Motor Flux" 19 = "Torque Est" 6 = "Output Power" 20 = "Scl Spd Fdbk" 7 = "Output Volts" 21 = "RampedSpdRef" 8 = "DC Bus Volts" 22 = "Spd Reg Out" 9 = "PI Reference" 23 = "MOP Level" 10 = "PI Feedback" 24 = "Trend 1 DInt" 11 = "PI Error" 25 = "Trend 1 Real" 12 = "PI Output" 26 = "Trend 2 DInt" 13 = "Reserved" 27 = "Trend 2 Real" | | | | |
| Option | Parameter | Option | Parameter | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1 "Output Freq" | 310 [Output Freq] | 16 "MtrTrqCurRef" | 305 [Mtr Trq Curr Ref] | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 2 "Sel Spd Ref" | 40 [Selected Spd Ref] | 17 "Speed Ref" | 301 [Motor Speed Ref] | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 3 "Output Curr" | 308 [Output Current] | 18 "Speed Fdbk" | 71 [Filtered SpdFdbk] | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 4 "Trq Cur (Iq)" | 499 [Trq Cur Fdbk (Iq)] | 19 "Torque Est" | 471 [Estimated Torque] | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 5 "% Motor Flux" | 309 [% Motor Flux] | 20 "Scl Spd Fdbk" | 72 [Scaled Spd Fdbk] | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 6 "Output Power" | 311 [Output Power] | 21 "RampedSpdRef" | 43 [Ramped Spd Ref] | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 7 "Output Volts" | 307 [Output Voltage] | 22 "Spd Reg Out" | 101 [SpdReg Integ Out] | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 8 "DC Bus Volts" | 306 [DC Bus Voltage] | 23 "MOP Level" | 1090 [MOP Level Real] | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 9 "PI Reference" | 181 [PI Reference] | 24 "Trend 1 DInt" | 572 [Trend Out1 DInt] | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 10 "PI Feedback" | 182 [PI Feedback] | 25 "Trend 1 Real" | 573 [Trend Out1 Real] | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 11 "PI Error" | 183 [PI Error] | 26 "Trend 2 DInt" | 576 [Trend Out2 DInt] | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 12 "PI Output" | 180 [PI Output] | 27 "Trend 2 Real" | 577 [Trend Out2 Real] | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 15 "Motor TrqRef" | 303 [Motor Torque Ref] | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 832 | Anlg Out1 DInt Link this parameter to an integer source parameter that will control Analog Output 1. | Default: 0 Min/Max: -/+2147483648 | | | ✓ | RW | 32-bit Integer | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 833 | Anlg Out1 Real Link this parameter to a real (floating point) source parameter that will control Analog Output 1. | Default: 0.0000 Min/Max: -/+22000000000.0000.0000 | | | ✓ | RW | Real | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 834 | Anlg Out1 Offset Provides an offset for Analog Output 1 before the scaling and limit blocks in the Analog Output 1 function. This parameter value is summed with either Par 832 [Anlg Out1 DInt] or Par 833 [Anlg Out1 Real] at the beginning of the function. | Default: 0.0000 Min/Max: -/+22000000000.0000 | | | ✓ | RW | Real | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 835 | Anlg Out1 Scale Scales the range of the source parameter to the range of Analog Output 1. For example: If Par 831 [Anlg Out1 Sel] is set to 1 "Output Freq", the output frequency of the drive is 0 - 60Hz and you enter "6" in this parameter, Par 837 [Anlg Out1 Value] = 6Hz per 1V, or 0 - 60Hz. Par 832 [Anlg Out1 DInt] or Par 833 [Anlg Out1 Real] is multiplied by this number after the limit function. | Units: /V Default: 0.0000 Min/Max: -/+22000000000.0000 | | | ✓ | RW | Real | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 836 | Anlg Out1 Zero Applies an offset to the scaled value of Analog Output 1. This parameter is summed with the output of the scaling block. This sum produces Par 837 [Anlg Out1 Value]. Typically this value corresponds to 0V for Analog Output 1. | Units: Volt Default: 0.0000 Min/Max: -/+20.0000 | | | ✓ | RW | Real | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 837 | Anlg Out1 Value Displays the voltage reference for Analog Output 1 before the digital to analog conversion. | Units: Volt Default: 0.0000 Min/Max: -/+10.0000 | | | | RO | Real | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 838 | Anlg Out2 Sel Identifies the signal used on Analog Output 2. If the desired signal is not available in the selection list, choose option 0 - "User Select" and link with Par 839 [Anlg Out2 DInt] or Par 840 [Anlg Out2 Real] to select the desired parameter for output. Refer to Par 831 for a list of parameters that correspond to the option selected in this parameter. | Default: 3 = "Output Curr" Options: 0 = "User Select" 14 = "Reserved" 1 = "Output Freq" 15 = "Motor TrqRef" 2 = "Sel Spd Ref" 16 = "MtrTrqCurRef" 3 = "Output Curr" 17 = "Speed Ref" 4 = "Trq Cur (Iq)" 18 = "Speed Fdbk" 5 = "% Motor Flux" 19 = "Torque Est" 6 = "Output Power" 20 = "Scl Spd Fdbk" 7 = "Output Volts" 21 = "RampedSpdRef" 8 = "DC Bus Volts" 22 = "Spd Reg Out" 9 = "PI Reference" 23 = "MOP Level" 10 = "PI Feedback" 24 = "Trend 1 DInt" 11 = "PI Error" 25 = "Trend 1 Real" 12 = "PI Output" 26 = "Trend 2 DInt" 13 = "Reserved" 27 = "Trend 2 Real" | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 839 | Anlg Out2 DInt Link this parameter to an integer source parameter that will control Analog Output 2. | Default: 0 Min/Max: -/+2147483648 | | | ✓ | RW | 32-bit Integer | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 840 | Anlg Out2 Real Link this parameter to a real (floating point) source parameter that will control Analog Output 2. | Default: 0.0000 Min/Max: -/+22000000000.0000 | | | ✓ | RW | Real | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

| No. | Name Description | Values | | Linkable | Read-Write | Data Type |
|-----|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|----------|------------|----------------|
| 841 | Anlg Out2 Offset Provides an offset for Analog Output 2 before the scaling and limit blocks in the Analog Output 2 function. This parameter value is summed with either Par 839 [Anlg Out2 DInt] or Par 840 [Anlg Out2 Real] at the beginning of the function. | Default: 0.0000 Min/Max: -/+2200000000.0000 | | ✓ | RW | Real |
| 842 | Anlg Out2 Scale Scales the range of the source parameter to the range of Analog Output 2. For example: If Par 838 [Anlg Out2 Sel] is set to 1 "Output Freq", the output frequency of the drive is 0 - 60Hz and you enter "6" in this parameter, Par 844 [Anlg Out2 Value] = 6Hz per 1V, or 0 - 60Hz. Par 839 [Anlg Out2 DInt] or Par 840 [Anlg Out2 Real] is multiplied by this number after the limit function. | Units: /V Default: 0.0000 Min/Max: -/+2200000000.0000 | | ✓ | RW | Real |
| 843 | Anlg Out2 Zero Applies an offset to the scaled value of Analog Output 2. This parameter is summed with the output of the scaling block. This sum produces Par 844 [Anlg Out2 Value]. Typically this value corresponds to 0V for Analog Output 2. | Units: Volt Default: 0.0000 Min/Max: -/+20.0000 | | ✓ | RW | Real |
| 844 | Anlg Out2 Value Displays the voltage reference for Analog Output 2 before the digital to analog conversion. | Units: Volt Default: 0.0000 Min/Max: -/+10.0000 | | | RO | Real |
| 845 | Dig Out1 Sel Identifies the signal used on Digital Output 1. If the desired signal is not available in the selection list, choose option 0 - "User Select" and link with Par 846 [Dig Out1 Data] and Par 847 [Dig Out1 Bit] to select the desired parameter and bit for output. | Default: 3 = "Ready" Options: 0 = "User Select" 15 = "Torque Limit" 1 = "Not Fault" 16 = "Power Limit" 2 = "Not Alarm" 17 = "Fault" 3 = "Ready" 18 = "Alarm" 4 = "Running" 19 = "Command Dir" 5 = "Reserved" 20 = "Actual Dir" 6 = "Reserved" 21 = "Jogging" 7 = "Enable On" 22 = "In Position" 8 = "Active" 23 = "Posit Watch1" 9 = "At Speed" 24 = "Posit Watch2" 10 = "At Setpt 1" 25 = "Cmpr 1 A<=B" 11 = "Above Setpt 2" 26 = "Cmpr 1 A>=B" 12 = "At ZeroSpeed" 27 = "Cmpr 2 A<=B" 13 = "Speed Limit" 28 = "Cmpr 2 A>=B" 14 = "CurrentLimit" | | | | |
| 846 | Dig Out1 Data Link a word to this parameter that will control Digital Output 1. The bit within the selected word that will control Digital Output 1 is set by Par 847 [Dig Out1 Bit]. | Default: 00000000000000000000000000000000 Min: 00000000000000000000000000000000 Max: 11111111111111111111111111111111 | | ✓ | RW | 32-bit Boolean |
| 847 | Dig Out1 Bit Selects the bit, from the word linked to Par 846 [Dig Out1 Data], that will change the status of Digital Output 1 (e.g., when Par 847 [Dig Out1 Bit] equals 0, bit 0 of Par 846 [Dig Out1 Data] will control Digital Output 1). | Default: 0 Min/Max: -32/31 | | ✓ | RW | 16-bit Integer |
| 848 | Dig Out1 On Time Defines the amount of time between a False to True transition on the output status and the corresponding change in state of Digital Output 1. If a transition on an output condition occurs and starts the time delay and the output condition returns to its original state before the delay timer reaches the setpoint, the delay timer will be aborted and the corresponding output status or digital output will not change state. Par 848 [Dig Out1 On Time] can be disabled by setting the delay time to 0 (zero). Note: This parameter was added for firmware version 3.01. | Units: Sec Default: 0.00 Min/Max: 0.00/600.00 | | | RW | 16-bit Integer |
| 849 | Dig Out1 OffTime Defines the amount of time between a True to False transition on the output status and the corresponding change in state of Digital Output 1. If a transition on an output condition occurs and starts the time delay and the output condition returns to its original state before the delay timer reaches the setpoint, the delay timer will be aborted and the corresponding output status or digital output will not change state. Note: This parameter was added for firmware version 3.01. | Units: Sec Default: 0.00 Min/Max: 0.00/600.00 | | | RW | 16-bit Integer |
| 850 | Dig Out2 Sel Identifies the signal used on Digital Output 2. If the desired signal is not available in the selection list, choose option 0 - "User Select" and link with Par 851 [Dig Out2 Data] and Par 852 [Dig Out2 Bit] to select the desired parameter and bit for output. | Default: 8 = "Active" Options: 0 = "User Select" 15 = "Torque Limit" 1 = "Not Fault" 16 = "Power Limit" 2 = "Not Alarm" 17 = "Fault" 3 = "Ready" 18 = "Alarm" 4 = "Running" 19 = "Command Dir" 5 = "Reserved" 20 = "Actual Dir" 6 = "Reserved" 21 = "Jogging" 7 = "Enable On" 22 = "In Position" 8 = "Active" 23 = "Posit Watch1" 9 = "At Speed" 24 = "Posit Watch2" 10 = "At Setpt 1" 25 = "Cmpr 1 A<=B" 11 = "Above Setpt 2" 26 = "Cmpr 1 A>=B" 12 = "At ZeroSpeed" 27 = "Cmpr 2 A<=B" 13 = "Speed Limit" 28 = "Cmpr 2 A>=B" 14 = "CurrentLimit" | | | | |

| No. | Name Description | Values | | Linkable | Read-Write | Data Type |
|-----|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|----------|------------|----------------|
| 851 | Dig Out2 Data Link a word to this parameter that will control Digital Output 2. The bit within the selected word that will control Digital Output 2 is set by Par 852 [Dig Out2 Bit]. | Default: 00000000000000000000000000000000 Min: 00000000000000000000000000000000 Max: 11111111111111111111111111111111 | | ✓ | RW | 32-bit Boolean |
| 852 | Dig Out 2 Bit Selects the bit, from the word linked to Par 851 [Dig Out 2 Data], that will change the status of Digital Output 2 (e.g., when Par 852 [Dig Out 2 Bit] equals 0, bit 0 of Par 851 [Dig Out 2 Data] will control Digital Output 2). | Default: 0 Min/Max: -32/31 | | ✓ | RW | 16-bit Integer |
| 853 | Dig Out2 On Time Defines the amount of time between a False to True transition on the output status and the corresponding change in state of Digital Output 2. If a transition on an output condition occurs and starts the time delay and the output condition returns to its original state before the delay timer reaches the setpoint, the delay timer will be aborted and the corresponding output status or digital output will not change state. Par 853 [Dig Out2 On Time] can be disabled by setting the delay time to 0 (zero). Note: This parameter was added for firmware version 3.01. | Units: Sec Default: 0.00 Min/Max: 0.00/600.00 | | | RW | 16-bit Integer |
| 854 | Dig Out2 OffTime Defines the amount of time between a True to False transition on the output status and the corresponding change in state of Digital Output 2. If a transition on an output condition occurs and starts the time delay and the output condition returns to its original state before the delay timer reaches the setpoint, the delay timer will be aborted and the corresponding output status or digital output will not change state. Note: This parameter was added for firmware version 3.01. | Units: Sec Default: 0.0 Min/Max: 0.0/600.00 | | | RW | 16-bit Integer |
| 855 | Rly Out3 Sel Identifies the signal used on Digital Output 3. If the desired signal is not available in the selection list, choose option 0 - "User Select" and link with Par 856 [Rly Out3 Data] and Par 857 [Rly Out3 Bit] to select the desired parameter for output. | Default: 1 = "Not Fault" Options: 0 = "User Select" 15 = "Torque Limit" 1 = "Not Fault" 16 = "Power Limit" 2 = "Not Alarm" 17 = "Fault" 3 = "Ready" 18 = "Alarm" 4 = "Running" 19 = "Command Dir" 5 = "Reserved" 20 = "Actual Dir" 6 = "Reserved" 21 = "Jogging" 7 = "Enable On" 22 = "In Position" 8 = "Active" 23 = "Posit Watch1" 9 = "At Speed" 24 = "Posit Watch2" 10 = "At Setpt 1" 25 = "Cmpr 1 A<=B" 11 = "Above Setpt 2" 26 = "Cmpr 1 A>=B" 12 = "At ZeroSpeed" 27 = "Cmpr 2 A<=B" 13 = "Speed Limit" 28 = "Cmpr 2 A>=B" 14 = "CurrentLimit" | | | | |
| 856 | Rly Out3 Data Link a word to this parameter that will control the Relay Output 3. The bit within the selected word that will control Relay Output 3 is set by Par 857 [Rly Out3 Bit]. | Default: 00000000000000000000000000000000 Min: 00000000000000000000000000000000 Max: 11111111111111111111111111111111 | | ✓ | RW | 32-bit Boolean |
| 857 | Rly Out3 Bit Selects the bit, from the word linked to Par 856 [Rly Out3 Data] that will change the status of the Relay Output 3 (e.g., when Par 857 [Rly Out3 Bit] equals 0, bit 0 of Par 856 [Rly Out3 Data] will control the Relay Output 3). | Default: 0 Min/Max: -32/31 | | ✓ | RW | 16-bit Integer |
| 858 | Rly Out3 On Time Defines the amount of time between a False to True transition on the output status and the corresponding change in state of Relay Output 3. If a transition on an output condition occurs and starts the time delay and the output condition returns to its original state before the delay timer reaches the setpoint, the delay timer will be aborted and the corresponding output status or relay output will not change state. Par 858 [Rly Out3 On Time] can be disabled by setting the delay time to 0 (zero). Note: This parameter was added for firmware version 3.01. | Units: Sec Default: 0.00 Min/Max: 0.00/600.00 | | | RW | 16-bit Integer |
| 859 | Rly Out3 OffTime Defines the amount of time between a True to False transition on the output status and the corresponding change in state of Relay Output 3. If a transition on an output condition occurs and starts the time delay and the output condition returns to its original state before the delay timer reaches the setpoint, the delay timer will be aborted and the corresponding output status or relay output will not change state. Note: This parameter was added for firmware version 3.01. | Units: Sec Default: 0.00 Min/Max: 0.00/600.00 | | | RW | 16-bit Integer |

| No. | Name Description | Values | | Linkable | Read-Write | Data Type |
|-----|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------|--|----------|------------|----------------|
| | General BitSwap Description The six (6) Bit Swap functions are used to replace one bit in a word with one bit from a different word. This is typically done to a control word where one bit in the control word is replaced by a bit from another word such as a digital input. Four (4) input parameters and one (1) output parameter are used to accomplish each Bit Swap function. | | | | | |
| 860 | BitSwap 1A Data This is the main word in which 1 bit will be edited. All of the data from this word except the selected bit in Par 861 [BitSwap 1A Bit] are passed to Par 864 [BitSwap 1 Result]. | Default: 0 Min/Max: 32 bits of data | | ✓ | RW | 32-bit Boolean |
| 865 | BitSwap 2A Data | | | | | |
| 870 | BitSwap 3A Data | | | | | |
| 875 | BitSwap 4A Data | | | | | |
| 880 | BitSwap 5A Data | | | | | |
| 885 | BitSwap 6A Data | | | | | |
| 861 | BitSwap 1A Bit This parameter specifies the bit to be replaced in Par 860 [BitSwap 1A Data]. | Default: 0 Min/Max: 0/31 | | | RW | 16-bit Integer |
| 866 | BitSwap 2A Bit | | | | | |
| 871 | BitSwap 3A Bit | | | | | |
| 876 | BitSwap 4A Bit | | | | | |
| 881 | BitSwap 5A Bit | | | | | |
| 886 | BitSwap 6A Bit | | | | | |
| 862 | BitSwap 1B Data This parameter contains the word from which the replacement bit will be selected. Only the selected bit is passed to Par 864 [BitSwap 1 Result]. | Default: 0 Min/Max: 32 bits of data | | ✓ | RW | 32-bit Boolean |
| 867 | BitSwap 2B Data | | | | | |
| 872 | BitSwap 3B Data | | | | | |
| 877 | BitSwap 4B Data | | | | | |
| 882 | BitSwap 5B Data | | | | | |
| 887 | BitSwap 6B Data | | | | | |
| 863 | BitSwap 1B Bit This parameter specifies the bit from Par 862 [BitSwap 1B Data] that will replace the specified bit in Par 860 [BitSwap 1A Data] and be loaded to Par 864 [BitSwap 1 Result]. A negative bit selection may be used to invert the data. Use "-32" to invert the value of bit 0. | Default: 0 Min/Max: -32/+31 | | | RW | 16-bit Integer |
| 868 | BitSwap 2B Bit | | | | | |
| 873 | BitSwap 3B Bit | | | | | |
| 878 | BitSwap 4B Bit | | | | | |
| 883 | BitSwap 5B Bit | | | | | |
| 888 | BitSwap 6B Bit | | | | | |
| 864 | BitSwap 1 Result This parameter contains the result of the Bit Swap operation. <pre>graph LR 860((860)) --> X[X] 861((861)) --> X 862((862)) --> Y[xxxxxxxxxxxx] 863((863)) --> Z[xxxxxx] X --> 864((864)) Y --> Z Z --> 864</pre> | Default: 0 Min/Max: 32 bits of data | | | RO | 32-bit Boolean |
| 869 | BitSwap 2 Result | | | | | |
| 874 | BitSwap 3 Result | | | | | |
| 879 | BitSwap 4 Result | | | | | |
| 884 | BitSwap 5 Result | | | | | |
| 889 | BitSwap 6 Result | | | | | |

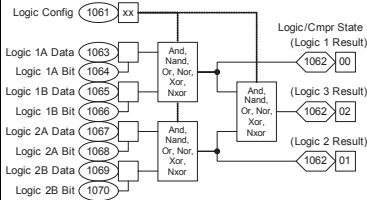
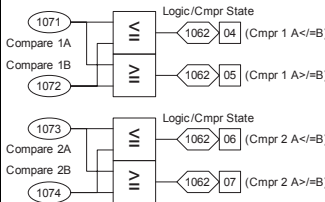
| No. | Name Description | Values | | | Linkable | Read-Write | Data Type | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
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| 892 | SL Comm TP Sel Enter or write a value to select SynchLink™ data displayed by Par 893 [SL Comm TP Data]. | Default: 0 = "Zero" Options: 0 = "Zero" 13 = "BufSeqErrTim" 1 = "SL MultA Src" 14 = "Rx Sys Rev" 2 = "SL Mult A In" 15 = "Tx Axis Size" 3 = "SL Mult B In" 16 = "Tx Dir Size" 4 = "SL Mult Out" 17 = "Tx Buf Size" 5 = "Rx Axis Size" 18 = "Tx Pkg Size" 6 = "Rx Dir Size" 19 = "Tx Seq Cnt" 7 = "Rx Buf Size" 20 = "Tx Index 0" 8 = "Rx Pkg Size" 21 = "Tx Index 1" 9 = "Rx Seq Cnt" 22 = "Tx Index 2" 10 = "Rx Index 0" 23 = "Rx Vendor ID" 11 = "Rx Index 1" 24 = "Rx ModuleTyp" 12 = "Rx Index 2" 25 = "Rx Serial #" | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 893 | SL Comm TP Data Displays data selected by Par 892 [SL Comm TP Sel]. | Default: 0 Min/Max: -/+2147483648 | | | | RO | 32-bit Integer | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 894 | SL CRC Err Accum Displays the total accumulated number of Cycle Redundancy Check (CRC) errors. Clearing a fault resets this accumulator. This data is visible on the SynchLink diagnostics tab of the Peer Communication window. Refer to the <i>SynchLink System Design Guide</i> , publication 1756-TD008, for PowerFlex 700S SynchLink topologies, hardware and wiring details. | Default: 0 Min/Max: 0/4294967296 | | | | RO | 32-bit Integer | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 895 | SL CRC Error Displays the number of CRC errors that occurred during the last test (last 8 mS). This data is visible on the SynchLink diagnostics tab of the Peer Communication window. | Default: 0 Min/Max: 0/4294967296 | | | | RO | 32-bit Integer | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 896 | SL BOF Err Accum Displays the total accumulated number of Beginning of Frame (BOF) errors. Clearing a fault resets this accumulator. This data is visible on the SynchLink diagnostics tab of the Peer Communication window. | Default: 0 Min/Max: 0/4294967296 | | | | RO | 32-bit Integer | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 897 | SL BOF Error Displays the number of BOF errors that occurred during the last test (last 8 mS). This data is visible on the SynchLink diagnostics tab of the Peer Communication window. | Default: 0 Min/Max: 0/4294967296 | | | | RO | 32-bit Integer | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 898 | SL CRC Err Limit Identifies the number of CRC errors per test (per 8 mS) allowed before the drive declares a SynchLink CRC Error exception event. Set this limit on the SynchLink diagnostics tab of the Peer Communication window. | Default: 2 Min/Max: 0/256 | | | | RW | 32-bit Integer | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 899 | SL BOF Err Limit The number of BOF errors per test (per 8 mS) allowed before the drive declares a SynchLink BOF Error exception event. Set this limit on the SynchLink diagnostics tab of the Peer Communication window. | Default: 2 Min/Max: 0/256 | | | | RW | 32-bit Integer | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 900 | SynchLink Rev Indicates the current revision of the local SynchLink Programmable Logic firmware. | Default: 0.1 Min/Max: 0.1/999.9 | | | | RO | 16-bit Integer | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 901 | SL System Rev Indicates the system revision of the SynchLink network. To be compatible on the network, all nodes must have the same major revision. | Default: 0.001 Min/Max: 0.001/999.999 | | | | RO | 32-bit Integer | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 902 903 | SL Error Status SL Error History Indicates the presence of SynchLink faults. This data is visible on the SynchLink diagnostics tab of the Peer Communication window. <ul style="list-style-type: none">• Bit 0 "Sync Loss" indicates SynchLink communication has failed, after it had been established.• Bit 1 "Rx Loss" indicates the receive port is not receiving data, and the receive port configuration is set to receive data.• Bit 2 "Many BOF Err" indicates the number of Beginning Of Frame (BOF) errors exceeds limit set by Par 899 [SL BOF Err Limit].• Bit 3 "Many CRC Err" indicates the number of Cyclic Redundancy Check (CRC) errors exceeds limit set by Par 898 [SL CRC Err Limit].• Bit 4 "Pckg Msg Err" indicates the received package sequence number has not matched for 1.0S.• Bit 5 "CommForm Err" indicates the format of received data does not match the configuration of the receive port.• Bit 6 "Sys Rev Err" indicates the system revision in the received data does not match the value of Par 900 [SynchLink Rev].• Bit 7 "Mult TKeeper" indicates more than one node on the SynchLink system is configured as a time keeper. <table><tr><td>Options</td><td></td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Mult TimeKpr</td><td>Sys Rev Err</td><td>Comm Frmt Err</td><td>Pckg Msg Err</td><td>Many CRC Err</td><td>Many BOF Err</td><td>Rx Loss</td><td>Sync Loss</td></tr><tr><td>Default</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td></tr><tr><td>Bit</td><td></td><td>15</td><td>14</td><td>13</td><td>12</td><td>11</td><td>10</td><td>9</td><td>8</td><td>7</td><td>6</td><td>5</td><td>4</td><td>3</td><td>2</td><td>1</td><td>0</td></tr></table> <div>0 = False 1 = True</div> | | | | | | | Options | | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | Mult TimeKpr | Sys Rev Err | Comm Frmt Err | Pckg Msg Err | Many CRC Err | Many BOF Err | Rx Loss | Sync Loss | Default | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | Bit | | 15 | 14 | 13 | 12 | 11 | 10 | 9 | 8 | 7 | 6 | 5 | 4 | 3 | 2 | 1 | 0 |
| Options | | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | Mult TimeKpr | Sys Rev Err | Comm Frmt Err | Pckg Msg Err | Many CRC Err | Many BOF Err | Rx Loss | Sync Loss | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Default | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Bit | | 15 | 14 | 13 | 12 | 11 | 10 | 9 | 8 | 7 | 6 | 5 | 4 | 3 | 2 | 1 | 0 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

| No. | Name Description | Values | | | | Linkable | Read-Write | Data Type | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
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| 904 | SL Node Cnfg Set bits to configure the SynchLink node. <ul style="list-style-type: none">Setting bit 0 "Time Keeper" configures the local node as the Time Master.Setting bit 2 "Sync Now" configures the node to synchronize with the Time Master immediately (1-2S per node) on power-up or recovery. If you do not set bit 2, the node will stay in the fast mode, taking up to 36S per node to synchronize on power-up or recovery.Setting bit 3 "Reset SL" resets SynchLink. This can be used to reset SynchLink after a configuration change instead of cycling the drive's power. Note: This parameter was changed to non-linkable for firmware version 3.01. Options <table><tr><td></td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reset SL</td><td>Sync Now</td><td>Reserved</td><td>Time Keeper</td></tr><tr><td>Default</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td></tr><tr><td>Bit</td><td>15</td><td>14</td><td>13</td><td>12</td><td>11</td><td>10</td><td>9</td><td>8</td><td>7</td><td>6</td><td>5</td><td>4</td><td>3</td><td>2</td><td>1</td><td>0</td></tr></table> 0 = False 1 = True | | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | Reset SL | Sync Now | Reserved | Time Keeper | Default | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | Bit | 15 | 14 | 13 | 12 | 11 | 10 | 9 | 8 | 7 | 6 | 5 | 4 | 3 | 2 | 1 | 0 | | | | |
| | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | Reset SL | Sync Now | Reserved | Time Keeper | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Default | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Bit | 15 | 14 | 13 | 12 | 11 | 10 | 9 | 8 | 7 | 6 | 5 | 4 | 3 | 2 | 1 | 0 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 905 | SL Rx CommFormat Defines the node's communication format for receiving SynchLink data. This determines the number of axis data, direct data and buffered data words received. Configure the format by using the Peer Communication window in the DriveExecutive™ programming software. <ul style="list-style-type: none">Option 14 can be used to allow the drive to receive position data that can be used as a position reference. Notes: Options 6 and 16 were added for firmware version 2.04. Option 14 was added and this parameter was changed to non-linkable for firmware version 3.01. | <table><tr><td></td><td>Value</td><td>Axis (A)</td><td>Direct (D)</td><td>Buffered (B)</td></tr><tr><td>Options</td><td>0</td><td>0</td><td>0</td><td>0</td></tr><tr><td></td><td>6</td><td>1</td><td>2</td><td>4</td></tr><tr><td></td><td>7</td><td>0</td><td>2</td><td>18</td></tr><tr><td></td><td>9</td><td>0</td><td>4</td><td>8</td></tr><tr><td></td><td>14</td><td>1</td><td>3</td><td>14</td></tr><tr><td></td><td>16</td><td>1</td><td>4</td><td>4</td></tr><tr><td></td><td>17</td><td>0</td><td>4</td><td>18</td></tr></table> | | Value | Axis (A) | Direct (D) | Buffered (B) | Options | 0 | 0 | 0 | 0 | | 6 | 1 | 2 | 4 | | 7 | 0 | 2 | 18 | | 9 | 0 | 4 | 8 | | 14 | 1 | 3 | 14 | | 16 | 1 | 4 | 4 | | 17 | 0 | 4 | 18 | | | | | | | | | | | | | | |
| | Value | Axis (A) | Direct (D) | Buffered (B) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Options | 0 | 0 | 0 | 0 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 6 | 1 | 2 | 4 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 7 | 0 | 2 | 18 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 9 | 0 | 4 | 8 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 14 | 1 | 3 | 14 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 16 | 1 | 4 | 4 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 17 | 0 | 4 | 18 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 906 | SL Rx DirectSel0 Determines the destination for the data received at word 0 of direct received data. Configure the selection by using the Peer Communication window. | Default: 0 = "No Data" | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 907 | SL Rx DirectSel1 Determines the destination for the data received at word 1 of direct received data. Configure the selection by using the Peer Communication window. | Options: 0 = "No Data" 14 = "Reserved" | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 908 | SL Rx DirectSel2 Determines the destination for the data received at word 2 of direct received data. Configure the selection by using the Peer Communication window. | 1 = "SL Multiply" 15 = "Reserved" | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 909 | SL Rx DirectSel3 Determines the destination for the data received at word 3 of direct received data. Configure the selection by using the Peer Communication window. Notes: Options 16 - 26 were added for firmware version 2.04. These parameters were changed to non-linkable for firmware version 3.01. | 2 = "Event P0" 16 = "Reserved" | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | 3 = "Event P1" 17 = "Reserved" | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | 4 = "Reserved" 18 = "Reserved" | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | 5 = "Reserved" 19 = "Reserved" | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | 6 = "Reserved" 20 = "Reserved" | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | 7 = "Reserved" 21 = "Dir Tx Data" | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | 8 = "Reserved" 22 = "Dir Rx Data" | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | 9 = "Reserved" 23 = "E0 Accum" | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | 10 = "Event Status" 24 = "E1 Accum" | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | 11 = "Reserved" 25 = "Opt0 Accum" | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | 12 = "Reserved" 26 = "Opt1 Accum" | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | 13 = "Reserved" | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 910 | SL Tx Comm Format Defines the node's communication format for transmitting SynchLink data. This determines the number of axis data words, direct data words and buffered data words transmitted. Configure the format by using the Peer Communication window in the DriveExecutive™ programming software. <ul style="list-style-type: none">Value 14 can be used to allow the drive to transmit position data that can be used as a position reference. Note: Option 14 was added and this parameter was changed to non-linkable for firmware version 3.01. | <table><tr><td></td><td>Value</td><td>Axis (A)</td><td>Direct (D)</td><td>Buffered (B)</td></tr><tr><td>Options</td><td>0</td><td>0</td><td>0</td><td>0</td></tr><tr><td></td><td>7</td><td>0</td><td>2</td><td>18</td></tr><tr><td></td><td>9</td><td>0</td><td>4</td><td>8</td></tr><tr><td></td><td>14</td><td>1</td><td>3</td><td>14</td></tr><tr><td></td><td>17</td><td>0</td><td>4</td><td>18</td></tr></table> | | Value | Axis (A) | Direct (D) | Buffered (B) | Options | 0 | 0 | 0 | 0 | | 7 | 0 | 2 | 18 | | 9 | 0 | 4 | 8 | | 14 | 1 | 3 | 14 | | 17 | 0 | 4 | 18 | | | | | | | | | | | | | | | | | | | | | | | | |
| | Value | Axis (A) | Direct (D) | Buffered (B) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Options | 0 | 0 | 0 | 0 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 7 | 0 | 2 | 18 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 9 | 0 | 4 | 8 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 14 | 1 | 3 | 14 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 17 | 0 | 4 | 18 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 911 | SL Tx DirectSel0 Determines the source type for the data transmitted by direct transmit word 0. The source type selections are: no data, event, feedback and drive parameter. | Default: 0 = "No Data" | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 912 | SL Tx DirectSel1 Determines the source type for the data transmitted by direct transmit word 1. The source type selections are: no data, event, feedback and drive parameter. | Options: 0 = "No Data" 14 = "Reserved" | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 913 | SL Tx DirectSel2 Determines the source type for the data transmitted by direct transmit word 2. The source type selections are: no data, event, feedback and drive parameter. | 1 = "SL Multiply" 15 = "Reserved" | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 914 | SL Tx DirectSel3 Determines the source type for the data transmitted by direct transmit word 3. The source type selections are: no data, event, feedback and drive parameter. Note: These parameters were changed to non-linkable for firmware version 3.01. | 2 = "Event P0" 16 = "Reserved" | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | 3 = "Event P1" 17 = "Reserved" | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | 4 = "Reserved" 18 = "Reserved" | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | 5 = "Reserved" 19 = "Reserved" | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | 6 = "Reserved" 20 = "Reserved" | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | 7 = "Reserved" 21 = "Dir Tx Data" | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | 8 = "Reserved" 22 = "Dir Rx Data" | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | 9 = "Reserved" 23 = "E0 Accum" | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | 10 = "Event Status" 24 = "E1 Accum" | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | 11 = "Reserved" 25 = "Opt0 Accum" | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | 12 = "Reserved" 26 = "Opt1 Accum" | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | 13 = "Reserved" | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

| No. | Name Description | Values | | Linkable | Read-Write | Data Type |
|------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|----------|------------|-----------------------|
| 929 to 932 | SL Dir Data Rx00 SL Dir Data Rx03 This is the SynchLink direct data received. See Par 928 [Rx Dir Data Type] for data type configuration. | Default: 0 Min/Max: 32 bits of data | | | RO | 32-bit Integer |
| 933 | Rx Buf Data Type Sets the data type for the SynchLink received buffered data. If the word's bit is set the data type is floating point (real). If the bit is not set the data type is integer. Options | | | | | |
| | Reserved Reserved SLBuf29 Real SLBuf28 Real SLBuf27 Real SLBuf26 Real SLBuf25 Real SLBuf24 Real SLBuf23 Real SLBuf22 Real SLBuf21 Real SLBuf20 Real SLBuf19 Real SLBuf18 Real SLBuf17 Real SLBuf16 Real SLBuf15 Real SLBuf14 Real SLBuf13 Real SLBuf12 Real SLBuf11 Real SLBuf10 Real SLBuf09 Real SLBuf08 Real SLBuf07 Real SLBuf06 Real SLBuf05 Real SLBuf04 Real SLBuf03 Real SLBuf02 Real SLBuf01 Real SLBuf00 Real | | | | | |
| | Default Bit | 0 31 0 30 0 29 0 28 0 27 0 26 0 25 0 24 0 23 0 22 0 21 0 20 0 19 0 18 0 17 0 16 0 15 0 14 0 13 0 12 0 11 0 10 0 9 0 8 0 7 0 6 0 5 0 4 0 3 0 2 0 1 0 0 | | | | 0 = False 1 = True |
| 934 to 951 | SL Buf Data Rx00 SL Buf Data Rx17 This is the SynchLink buffered data received. See Par 933 [Rx Buf Data Type] for data type configuration. | Default: 0 Min/Max: 32 bits of data | | | RO | 32-bit Integer |
| 964 | Tx Dir Data Type Indicates the data type of each Direct Transmit word. If the word's bit is set the data type is floating point (real). If the bit is not set the data type is integer. Use the Peer Communication window to configure this selection. Options | | | | | |
| | Reserved Reserved Reserved Reserved Reserved Reserved Reserved Reserved Reserved Reserved Reserved Reserved Reserved Reserved Reserved Reserved Reserved Reserved Reserved Reserved Reserved Reserved SLDir03 Real SLDir02 Real SLDir01 Real SLDir00 Real | | | | | |
| | Default Bit | 0 31 0 30 0 29 0 28 0 27 0 26 0 25 0 24 0 23 0 22 0 21 0 20 0 19 0 18 0 17 0 16 0 15 0 14 0 13 0 12 0 11 0 10 0 9 0 8 0 7 0 6 0 5 0 4 0 3 0 2 0 1 0 0 | | | | 0 = False 1 = True |
| 965 to 968 | SL Dir Data Tx00 SL Dir Data Tx03 This is the SynchLink direct data transmitted. See Par 964 [Tx Dir Data Type] for data type configuration. | Default: 0 Min/Max: 32 bits of data | | ✓ | RW | 32-bit Integer |
| 969 | Tx Buf Data Type Indicates the data type of each Buffered Transmit word. If the word's bit is set the data type is floating point (real). If the bit is not set the data type is integer. Use the Peer Communication window to configure this selection. Options | | | | | |
| | Reserved Reserved SLBuf29 Real SLBuf28 Real SLBuf27 Real SLBuf26 Real SLBuf25 Real SLBuf24 Real SLBuf23 Real SLBuf22 Real SLBuf21 Real SLBuf20 Real SLBuf19 Real SLBuf18 Real SLBuf17 Real SLBuf16 Real SLBuf15 Real SLBuf14 Real SLBuf13 Real SLBuf12 Real SLBuf11 Real SLBuf10 Real SLBuf09 Real SLBuf08 Real SLBuf07 Real SLBuf06 Real SLBuf05 Real SLBuf04 Real SLBuf03 Real SLBuf02 Real SLBuf01 Real SLBuf00 Real | | | | | |
| | Default Bit | 0 31 0 30 0 29 0 28 0 27 0 26 0 25 0 24 0 23 0 22 0 21 0 20 0 19 0 18 0 17 0 16 0 15 0 14 0 13 0 12 0 11 0 10 0 9 0 8 0 7 0 6 0 5 0 4 0 3 0 2 0 1 0 0 | | | | 0 = False 1 = True |
| 970 to 987 | SL Buf Data Tx00 SL Buf Data Tx17 This is the SynchLink buffered data transmitted. See Par 969 [Tx Buf Data Type] for data type configuration. | Default: 0 Min/Max: 32 bits of data | | ✓ | RO W | 32-bit Integer |
| 1000 | UserFunc Enable This parameter is used to enable and disable the optional user functions. If a bit is set the corresponding function is enabled. If the bit is not set the corresponding function is disabled and will not be processed (outputs will not be updated). Notes: Bit 16 "Ratio Calc" was added for firmware version 2.04. Bit 5 "AddSub Math" and bit 6 "Delay Timer" were added for firmware version 3.01. Bit 7 "EGR" (Electronic Gear Ratio) was added for firmware version 4.001. Options | | | | | |
| | Reserved Reserved Reserved Reserved Reserved Reserved Reserved Reserved Reserved Reserved Reserved Reserved Reserved Reserved MOP Ratio Calc Reserved Reserved Reserved Reserved Reserved Reserved EGR Delay Timer AddSub Math MulDiv Math Logic Funcis Converts Sel Switches User Params | | | | | |
| | Default Bit | 0 31 0 30 0 29 0 28 0 27 0 26 0 25 0 24 0 23 0 22 0 21 0 20 0 19 0 18 0 17 0 16 0 15 0 14 0 13 0 12 0 11 0 10 0 9 0 8 0 7 0 6 0 5 0 4 0 3 0 2 0 1 0 1 1 1 1 1 1 1 | | | | 0 = False 1 = True |

| No. | Name Description | Values | | | | Linkable | Read-Write | Data Type | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|--------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------|----------|----------|----------|----------|------------|-----------|----------|----------|--------------|--------------|---------------|---------------|---------------|---------------|--------------|----------|----------|----------|----------|----------|----------|----------|----------|----------|-------------|-------------|----------|--------------|-------------|-----------------------|---|---|----|----------------|-----------------------|
| 1001 | UserFunct Actual This parameter displays the actual status of the user functions. If a bit is set, then the corresponding function is active. When Par 1001 [UserFunct Actual] does not match Par 1000 [UserFunct Enable] it is an indication that the function could not activate because of an error. Typically, the limitation is caused by processor overloading. Adjust Par 146 [FW TaskTime Sel] to a slower task cycle (more time). | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | Options | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | MOP | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | MulDiv Math | Logic Funcs | Converts | Sel Switches | User Params | 0 = False 1 = True | | | | | |
| | Default | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | | | | |
| | Bit | 31 | 30 | 29 | 28 | 27 | 26 | 25 | 24 | 23 | 22 | 21 | 20 | 19 | 18 | 17 | 16 | 15 | 14 | 13 | 12 | 11 | 10 | 9 | 8 | 7 | 6 | 5 | 4 | 3 | 2 | 1 | 0 | | | | |
| 1002 to 1011 | UserData DInt 01 to UserData DInt 10 These are general purpose parameters available for storage of 32-bit enumerated data or DInt data by the user. These parameters will be retained through power cycles. | Default: 0 Min/Max: -/+2147483648 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | ✓ | RW | 32-bit Integer | |
| 1012 to 1021 | User Data Real 01 to UserData Real 10 These are general purpose parameters available for storage of Real data by the user. These parameters will be retained through power cycles. | Default: 0.0000 Min/Max: -/+22000000000.0000 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | ✓ | RW | Real |
| 1022 | Sel Switch Ctrl This is the control parameter for the switches used by the Selector Switch user functions. 16 Input Selector Switches (Pars 1029 - 1044) are controlled by bits 1-4. <ul style="list-style-type: none">Bit 0 "SSW DataPass" Updates the output. If bit 0 is low, the output is NOT updated with the selected input.Bits 1 "Sel Switch 00" - 4 "Sel Switch 03" Binary coded selection of the 16 inputs to the switch. Bit 1 is the Least Significant Bit. If these bits are all low (set to "0"), Par 1029 is selected. If these bits are all high (set to "1") Par 1044 is selected. (Refer to Pars 1029 - 1044.) The values in these bits can be controlled by the digital inputs. (Refer to Pars 825 - 830 and to the "Selector Switches" section of the <i>PowerFlex 700S Drives with Phase II Control - Reference Manual</i>, publication PFLEX-RM003..., for more information.)Bit 5 "SW Real 1 On" activates the Real switch. (Refer to Pars 1023 - 1025.)Bit 6 "SW DInt 1 On" activates the DInt switch. (Refer to Pars 1026 - 1028.) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 0 = False 1 = True |
| | Options | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | SW DInt 1 On | SW Real 1 On | Sel Switch 03 | Sel Switch 02 | Sel Switch 01 | Sel Switch 00 | SSW DataPass | | | | | | | | | | | | | | | | | | | | |
| | Default | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | | | | | | | | | | | | | | | | | | | |
| | Bit | 15 | 14 | 13 | 12 | 11 | 10 | 9 | 8 | 7 | 6 | 5 | 4 | 3 | 2 | 1 | 0 | | | | | | | | | | | | | | | | | | | | |
| 1023 | Switch Real 1 NC This is the Normally Closed input to the Real switch. When Par 1022 [Sel Switch Ctrl], bit 5 "SW Real 1 On" is low, this input is updated to Par 1025 [Switch Real 1 Output]. | Default: 0.0000 Min/Max: -/+22000000000.0000 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | ✓ | RW | Real |
| 1024 | Switch Real 1 NO This is the Normally Open input to the Real switch. When Par 1022 [Sel Switch Ctrl], bit 5 "SW Real 1 On" is high, this input is updated to Par 1025 [Switch Real 1 Output]. | Default: 0.0000 Min/Max: -/+22000000000.0000 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | ✓ | RW | Real |
| 1025 | Switch Real 1 Out This is the result of the Real switch. The output is loaded with the selected input based on Par 1022 [Sel Switch Ctrl], bit 5 "SW Real 1 On". If this parameter does not update, check the setting of Par 1000 [UserFunct Enable], bit 1 "User Params". | Default: 0.0000 Min/Max: -/+22000000000.0000 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | RO | Real |
| 1026 | Switch DInt 1 NC This is the Normally Closed input to the DInt switch. When Par 1022 [Sel Switch Ctrl], bit 6 "SW DInt 1 On" is low, this input is updated to Par 1028 [Switch DInt 1 Output]. | Default: 0.0000 Min/Max: -/+22000000000.0000 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | ✓ | RW | 32-bit Integer |
| 1027 | Switch DInt 1 NO This is the Normally Open input to the Real switch. When Par 1022 [Sel Switch Ctrl], bit 6 "SW DInt 1 On" is high, this input is updated to Par 1028 [Switch DInt 1 Output]. | Default: 0.0000 Min/Max: -/+22000000000.0000 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | ✓ | RW | 32-bit Integer |
| 1028 | Switch DInt 1 Out This is the result of the switch. The output is loaded with the selected input based on Par 1022 [Sel Switch Ctrl], bit 6 "SW DInt 1 On". If this parameter does not update, check the setting of Par 1000 [UserFunct Enable], bit 1 "User Params". | Default: 0.0000 Min/Max: -/+22000000000.0000 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | RO | 32-bit Integer |
| 1029 to 1044 | Sel Switch In00 to Sel Switch In15 Set these values for the inputs to the selector switch specified in Par 1022 [Sel Switch Ctrl]. All inputs are entered as Real values. You may use the output of the selector switch as either Real or DInt. A conversion is done to create the DInt value. | Default: 0.0000 Min/Max: -/+22000000000.0000 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | ✓ | RW | Real |



| No. | Name Description | Values | | Linkable | Read-Write | Data Type |
|------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------|--|----------|------------|----------------|
| 1045 | SelSwch RealOut This is the result of the selector switch. The output is loaded with the selected input based on Par 1022 [Sel Switch Ctrl], bit 0 and bits 1-4. The output is only updated when Par 1022 [Sel Switch Ctrl], bit 0 "SSW DataPass" is high. If Par 1022 [Sel Switch Ctrl], bit 0 is not high the output will not be updated to the selected input. If this parameter does not update, check the setting of Par 1000 [UserFunct Enable], bit 1 "User Params". | Default: 0.0000 Min/Max: -/+2200000000.0000 | | | RO | Real |
| 1046 | SelSwch DIntOut This value is the value of Par 1045 [SelSwch RealOut] converted to a DInt value. Use this value for point to point positioning values. | Default: 0 Min/Max: -/+2147483648 | | | RO | 32-bit Integer |
| 1047 | DInt2Real1 In Input value for a first DInt to Real value conversion. Note: This parameter name changed from [DInt2Real In] to [DInt2Real1 In] for firmware version 3.01. | Default: 0 Min/Max: -/+2147483648 | | ✓ | RW | 32-bit Integer |
| 1048 | DInt2Real1 Scale Input value to scale the first conversion from DInt to Real. This is a multiplication to the input value after conversion to a Real value. Note: This parameter name changed from [DInt2Real Scale] to [DInt2Real1 Scale] for firmware version 3.01. | Default: 0.0000 Min/Max: -/+2200000000.0000 | | ✓ | RW | Real |
| 1049 | DInt2Real1 Result This is the resultant output of the first conversion form a DInt value to a Real value after scaling. Note: This parameter name changed from [DInt2RealResult] to [DInt2Real1 Result] for firmware version 3.01. | Default: 0.0000 Min/Max: -/+2200000000.0000 | | | RO | Real |
| 1050 | Real2DInt In Input value for Real to DInt value conversion. | Default: 0.0000 Min/Max: -/+2200000000.0000 | | ✓ | RW | Real |
| 1051 | Real2DInt Scale Input value to scale the conversion from Real to DInt. This is a multiplication to the input value after conversion to a DInt value. | Default: 0.0000 Min/Max: -/+2200000000.0000 | | ✓ | RW | Real |
| 1052 | Real2DInt Result This is the resultant output of the conversion form a Real value to a DInt value after scaling. | Default: 0 Min/Max: -/+2147483648 | | | RO | 32-bit Integer |
| 1053 | MulDiv 1 Input Input value to be scaled as need with the Multiplication and Division function. This input will be multiplied by Par 1054 [MulDiv 1 Mul] and then divided by Par 1055 [MulDiv 1 Div]. The result will be loaded to Par 1056 [MulDiv 1 Result]. Equation: $(\text{Par } 1053 * \text{Par } 1054) / \text{Par } 1055 = \text{Par } 1056$ | Default: 0.0000 Min/Max: -/+2200000000.0000 | | ✓ | RW | Real |
| 1054 | MulDiv 1 Mul Set this value as the multiplier to the value of Par 1053 [MulDiv 1 Input]. The result will be divided by Par 1055 and loaded into Par 1056 . See Par 1053 . | Default: 0.0000 Min/Max: -/+2200000000.0000 | | ✓ | RW | Real |
| 1055 | MulDiv 1 Div Set this value as the divisor of the result of Par 1053 * Par 1054 . The result will be loaded into Par 1056 . See Par 1053 . | Default: 0.0000 Min/Max: -/+2200000000.0000 | | ✓ | RW | Real |
| 1056 | MulDiv 1 Result This is the result output from the Multiplication and Division function. See Par 1053 . Equation: $\text{Par } 1056 = (\text{Par } 1053 * \text{Par } 1054) / \text{Par } 1055$ | Default: 0.0000 Min/Max: -/+2200000000.0000 | | | RO | Real |
| 1057 | MulDiv 2 Input Input value to be scaled as need with the Multiplication and Division function. This input will be multiplied by Par 1058 [MulDiv 2 Mul] and then divided by Par 1059 [MulDiv 2 Div]. The result will be loaded to Par 1060 [MulDiv 2 Result]. Equation: $(\text{Par } 1057 * \text{Par } 1058) / \text{Par } 1059 = \text{Par } 1060$ | Default: 0.0000 Min/Max: -/+2200000000.0000 | | ✓ | RW | Real |
| 1058 | MulDiv 2 Mul Set this value as the multiplier to the value of Par 1057 [MulDiv 2 Input]. The result will be divided by Par 1059 and loaded into Par 1060 . See Par 1057 . | Default: 0.0000 Min/Max: -/+2200000000.0000 | | ✓ | RW | Real |
| 1059 | MulDiv 2 Div Set this value as the divisor of the result of Par 1057 * Par 1058 . The result will be loaded into Par 1060 . See Par 1057 . | Default: 0.0000 Min/Max: -/+2200000000.0000 | | ✓ | RW | Real |
| 1060 | MulDiv 2 Result This is the result output from the Multiplication and Division function. See Par 1057 . Equation: $\text{Par } 1060 = (\text{Par } 1057 * \text{Par } 1058) / \text{Par } 1059$ | Default: 0.0000 Min/Max: -/+2200000000.0000 | | | RO | Real |

| No. | Name Description | Values | | | | Linkable | Read-Write | Data Type | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|---------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------|----------|----------|----------|----------|----------------|-----------|----------|----------|----------|----------|----------|----------|----------|--------------|-------------|--------------|-------------|--------------|-------------|--------------|-------------|--------------|-------------|--------------|-------------|--------------|-------------|--------------|-------------|--------------|-------------|--------------|-------------|---------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|-----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|---|---|---|---|---|---|---|---|---|---|--|--|--|--|-----------------------|
| 1061 | Logic Config Set this parameter to configure the logic routine in Pars 1063 - 1070. The result of this logic routine is displayed in Par 1062 [Logic/Cmpr State]. There are three configurable logic blocks as displayed below. Each block can be configured as (AND / NAND / OR / NOR / XOR / NXOR). Select the functions as desired. Multiple operation selection for one block will result in the first selection (least significant bit) being the active mode.  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | <table><tr><td>Options</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Logic 3 NXOR</td><td>Logic 3 XOR</td><td>Logic 3 NOR</td><td>Logic 3 OR</td><td>Logic 3 NAND</td><td>Logic 3 AND</td><td>Logic 2 NXOR</td><td>Logic 2 XOR</td><td>Logic 2 NOR</td><td>Logic 2 OR</td><td>Logic 2 NAND</td><td>Logic 2 AND</td><td>Logic 1 NXOR</td><td>Logic 1 XOR</td><td>Logic 1 NOR</td><td>Logic 1 OR</td><td>Logic 1 NAND</td><td>Logic 1 AND</td></tr><tr><td>Default</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td></tr><tr><td>Bit</td><td>31</td><td>30</td><td>29</td><td>28</td><td>27</td><td>26</td><td>25</td><td>24</td><td>23</td><td>22</td><td>21</td><td>20</td><td>19</td><td>18</td><td>17</td><td>16</td><td>15</td><td>14</td><td>13</td><td>12</td><td>11</td><td>10</td><td>9</td><td>8</td><td>7</td><td>6</td><td>5</td><td>4</td><td>3</td><td>2</td><td>1</td><td>0</td></tr></table> | Options | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | Logic 3 NXOR | Logic 3 XOR | Logic 3 NOR | Logic 3 OR | Logic 3 NAND | Logic 3 AND | Logic 2 NXOR | Logic 2 XOR | Logic 2 NOR | Logic 2 OR | Logic 2 NAND | Logic 2 AND | Logic 1 NXOR | Logic 1 XOR | Logic 1 NOR | Logic 1 OR | Logic 1 NAND | Logic 1 AND | Default | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | Bit | 31 | 30 | 29 | 28 | 27 | 26 | 25 | 24 | 23 | 22 | 21 | 20 | 19 | 18 | 17 | 16 | 15 | 14 | 13 | 12 | 11 | 10 | 9 | 8 | 7 | 6 | 5 | 4 | 3 | 2 | 1 | 0 | | | | | 0 = False 1 = True |
| Options | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | Logic 3 NXOR | Logic 3 XOR | Logic 3 NOR | Logic 3 OR | Logic 3 NAND | Logic 3 AND | Logic 2 NXOR | Logic 2 XOR | Logic 2 NOR | Logic 2 OR | Logic 2 NAND | Logic 2 AND | Logic 1 NXOR | Logic 1 XOR | Logic 1 NOR | Logic 1 OR | Logic 1 NAND | Logic 1 AND | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Default | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Bit | 31 | 30 | 29 | 28 | 27 | 26 | 25 | 24 | 23 | 22 | 21 | 20 | 19 | 18 | 17 | 16 | 15 | 14 | 13 | 12 | 11 | 10 | 9 | 8 | 7 | 6 | 5 | 4 | 3 | 2 | 1 | 0 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1062 | Logic/Cmpr State Displays the logical states of the Logic routine (Pars 1063 - 1070) and the results of the compare functions (Par 1071 - 1074).  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | <table><tr><td>Options</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td></tr><tr><td>Default</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td></tr><tr><td>Bit</td><td>31</td><td>30</td><td>29</td><td>28</td><td>27</td><td>26</td><td>25</td><td>24</td><td>23</td><td>22</td><td>21</td><td>20</td><td>19</td><td>18</td><td>17</td><td>16</td><td>15</td><td>14</td><td>13</td><td>12</td><td>11</td><td>10</td><td>9</td><td>8</td><td>7</td><td>6</td><td>5</td><td>4</td><td>3</td><td>2</td><td>1</td><td>0</td></tr></table> | Options | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | Default | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | Bit | 31 | 30 | 29 | 28 | 27 | 26 | 25 | 24 | 23 | 22 | 21 | 20 | 19 | 18 | 17 | 16 | 15 | 14 | 13 | 12 | 11 | 10 | 9 | 8 | 7 | 6 | 5 | 4 | 3 | 2 | 1 | 0 | | | | | 0 = False 1 = True |
| Options | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Default | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Bit | 31 | 30 | 29 | 28 | 27 | 26 | 25 | 24 | 23 | 22 | 21 | 20 | 19 | 18 | 17 | 16 | 15 | 14 | 13 | 12 | 11 | 10 | 9 | 8 | 7 | 6 | 5 | 4 | 3 | 2 | 1 | 0 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1063 | Logic 1A Data Selects the data word for the first input to Logic Block 1. See Par 1061 [Logic Config]. | Default: 0 Min/Max: 32 bits of data | | | ✓ | RW | 32-bit Boolean | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1064 | Logic 1A Bit Selects the bit of Par 1063 [Logic 1A Data] for the first input to Logic Block 1. Note: To invert the selected input enter the desired bit as negative. Use -32 to invert bit 0. | Default: 0 Min/Max: -31/32 | | | | RW | 16-bit Integer | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1065 | Logic 1B Data Selects the data word for the second input to Logic Block 1. See Par 1061 [Logic Config]. | Default: 0 Min/Max: 32 bits of data | | | ✓ | RW | 32-bit Boolean | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1066 | Logic 1B Bit Selects the bit of Par 1065 [Logic 1B Data] for the second input to Logic Block 1. Note: To invert the selected input enter the desired bit as negative. Use -32 to invert bit 0. | Default: 0 Min/Max: -31/32 | | | | RW | 16-bit Integer | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1067 | Logic 2A Data Selects the data word for the first input to Logic Block 2. See Par 1061 [Logic Config] | Default: 0 Min/Max: 32 bits of data | | | ✓ | RW | 32-bit Boolean | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1068 | Logic 2A Bit Selects the bit of Par 1067 [Logic 2A Data] for the first input to Logic Block 2. Note: To invert the selected input enter the desired bit as negative. Use -32 to invert bit 0. | Default: 0 Min/Max: -31/32 | | | | RW | 16-bit Integer | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1069 | Logic 2B Data Selects the data word for the second input to Logic Block 2. See Par 1061 [Logic Config]. | Default: 0 Min/Max: 32 bits of data | | | ✓ | RW | 32-bit Boolean | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1070 | Logic 2B Bit Selects the bit of Par 1069 [Logic 2B Data] for the second input to Logic Block 2. Note: To invert the selected input enter the desired bit as negative. Use -32 to invert bit 0. | Default: 0 Min/Max: -31/32 | | | | RW | 16-bit Integer | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1071 | Compare 1A Sets input A for the Compare 1 function. The compare function allows the user to compare two values. The results of the compare are displayed in Par 1062 [Logic/Cmpr State]. Available functions are (A <= B , A >= B). | Default: 0.0000 Min/Max: -/+2200000000.0000 | | | ✓ | RW | Real | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |


| No. | Name Description | Values | | | Linkable | Read-Write | Data Type | | | | | | | | | | | | | | | | | | |
|----------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------|----------|----------|------------|----------------|---------|---------------|--------------|-------|----------|----------|---------|---|---|---|---|---|-----|---|---|---|---|---|
| 1072 | Compare 1B Sets input B for the Compare 1. The compare functions allow the user to compare two values. The results of the compare are displayed in Par 1062 [Logic/Cmpr State]. Available functions are (A <= B , A >= B). | Default: 0.0000 Min/Max: -/+2200000000.0000 | | | ✓ | RW | Real | | | | | | | | | | | | | | | | | | |
| 1073 | Compare 2A Sets input A for the Compare 2. The compare functions allow the user to compare two values. The results of the compare are displayed in Par 1062 [Logic/Cmpr State]. Available functions are (A <= B , A >= B). | Default: 0.0000 Min/Max: -/+2200000000.0000 | | | ✓ | RW | Real | | | | | | | | | | | | | | | | | | |
| 1074 | Compare 2B Sets input B for the Compare 2. The compare functions allow the user to compare two values. The results of the compare are displayed in Par 1062 [Logic/Cmpr State]. Available functions are (A <= B , A >= B). | Default: 0.0000 Min/Max: -/+2200000000.0000 | | | ✓ | RW | Real | | | | | | | | | | | | | | | | | | |
| 1086 | MOP Control Motor Operated Potentiometer (MOP) control and configuration. <ul style="list-style-type: none">• Bit 0 "Increase", if set, increments the MOP level (output) from Par 1087 [MOP Rate] to Par 1088 [MOP High Limit].• Bit 1 "Decrease", if set, decrements the MOP level (output) from Par 1087 [MOP Rate] to Par 1089 [MOP Low Limit].• Bit 2 "Reset", if set, resets the MOP level (output) to zero and bit 0 "Increment" and bit 1 "Decrease" are inhibited.• Bit 3 "Reset @ Stop", if set, resets the MOP level (output) to zero when stop is set.• Bit 4 "Reset @ PwrLs", if set, resets the MOP level (output) to zero when power is lost. Note: If either bit 3 or bit 4 is not set, the MOP level (output) will be saved until bit 2 "Reset" is set. <table><tr><td>Options</td><td>Reset @ PwrLs</td><td>Reset @ Stop</td><td>Reset</td><td>Decrease</td><td>Increase</td></tr><tr><td>Default</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td></tr><tr><td>Bit</td><td>4</td><td>3</td><td>2</td><td>1</td><td>0</td></tr></table> | | | | | | | Options | Reset @ PwrLs | Reset @ Stop | Reset | Decrease | Increase | Default | 0 | 0 | 0 | 0 | 0 | Bit | 4 | 3 | 2 | 1 | 0 |
| Options | Reset @ PwrLs | Reset @ Stop | Reset | Decrease | Increase | | | | | | | | | | | | | | | | | | | | |
| Default | 0 | 0 | 0 | 0 | 0 | | | | | | | | | | | | | | | | | | | | |
| Bit | 4 | 3 | 2 | 1 | 0 | | | | | | | | | | | | | | | | | | | | |
| 1087 | MOP Rate Sets the rate of change (increment or decrement) for the MOP. The setting 0.1/sec will equate to an increment or decrement of 0.1 for every second active. If this is used for the speed reference, that equals 10% of base speed every second for a total of 10 seconds to reach base speed reference. | Units: Sec Default: 0.1000 Sec Min/Max: 0.0000/2200000000.0000 | | | ✓ | RW | Real | | | | | | | | | | | | | | | | | | |
| 1088 | MOP High Limit Sets the upper limit for the MOP output. The MOP cannot be incremented above this level. | Units: Sec Default: 1.0000 Sec Min/Max: 0.0000/2200000000.0000 | | | ✓ | RW | Real | | | | | | | | | | | | | | | | | | |
| 1089 | MOP Low Limit Sets the lower limit for the MOP output. The MOP cannot be decremented below this level. | Units: Sec Default: -1.0000 Sec Min/Max: -2200000000.0000/0.0000 | | | ✓ | RW | Real | | | | | | | | | | | | | | | | | | |
| 1090 | MOP Level Real Actual output value of the MOP as a real number. This value is also found in the speed reference selection. A value of 1.0 equals base motor speed. | Units: Sec Default: 0.0000 Min/Max: -/+2200000000.0000 | | | | RO | Real | | | | | | | | | | | | | | | | | | |
| 1091 | MOP Scale Dint Set this value for scaling of the Dint MOP output. The MOP is calculated and controlled as a Real value MOP. Use this scaler to adjust for an integer value. Use this parameter to scale the conversion from Par 1090 [MOP Level Real] to Par 1092 [MOP Level Dint]. | Default: 1.0000 Min/Max: -/+2200000000.0000 | | | ✓ | RW | Real | | | | | | | | | | | | | | | | | | |
| 1092 | MOP Level Dint Actual output value of the MOP as a DInt number. This value is scaled by Par 1091 [MOP Scale Dint]. | Default: 0.0000 Min/Max: -/+2147483648 | | | | RO | 32-bit Integer | | | | | | | | | | | | | | | | | | |
| 1093 1094 1095 | Anlg In1LossCnfg Anlg In2LossCnfg Anlg In3LossCnfg Selects drive action when an analog input signal loss is detected. Signal loss is defined as an analog signal less than 1 V or 2 mA. The signal loss event ends and normal operation resumes when the input signal is greater than or equal to 1.5 V or 3 mA. Note: This parameter was added for firmware version 3.01. | Default: 0 = "Disabled" Options: 0 = "Disabled" 4 = "Set Input Hi" 1 = "Fault" 5 = "Goto Presett" 2 = "Hold Input" 6 = "Hold OutFreq" 3 = "Set Input Lo" | | | | | | | | | | | | | | | | | | | | | | | |
| 1096 | AddSub 1 Input Input value to be added to and/or subtracted from as need with the Add and Subtract function. This input will be added with Par 1097 [AddSub 1 Add]. The result will be subtracted from by the value in Par 1098 [AddSub 1 Subtrct]. The result of the operation is loaded to Par 1099 [AddSub 1 Result]. Equation: Par (1096 + Par 1097) - Par 1098 = Par 1099 Note: This parameter was added for firmware version 3.01. | Default: 1.0000 Min/Max: -/+2200000000.0000 | | | ✓ | RW | Real | | | | | | | | | | | | | | | | | | |

| No. | Name Description | Values | | Linkable | Read-Write | Data Type |
|------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------|--|----------|------------|-----------|
| 1097 | AddSub 1 Add This value is added to the value of Par 1096 [AddSub 1 Input]. The result will be subtracted from by Par 1098 and loaded into Par 1099 . See Par 1096 . Note: This parameter was added for firmware version 3.01. | Default: 1.0000 Min/Max: -/+2200000000.0000 | | ✓ | RW | Real |
| 1098 | AddSub 1 Subtrct This value is subtracted from the result of Par 1096 + Par 1097 . The result will be loaded into Par 1099 . See Par 1096 . Note: This parameter was added for firmware version 3.01. | Default: 1.0000 Min/Max: -/+2200000000.0000 | | ✓ | RW | Real |
| 1099 | AddSub 1 Result This is the result output from the Add and Subtract function. See Par 1096 . Equation: Par 1099 = (Par 1096 + Par 1097) - Par 1098 Note: This parameter was added for firmware version 3.01. | Default: 1.0000 Min/Max: -/+2200000000.0000 | | | RO | Real |
| 1100 | AddSub 2 Input Input value to be added to and/or subtracted from as need with the Add and Subtract function. This input will be added with Par 1101 [AddSub 2 Add]. The result will be subtracted from by the value in Par 1102 [AddSub 2 Subtrct]. The result of the operation is loaded to Par 1103 [AddSub 2 Result]. Equation: $\text{Par (1100 + Par 1101) - Par 1102 = Par 1103}$ Note: This parameter was added for firmware version 3.01. | Default: 1.0000 Min/Max: -/+2200000000.0000 | | ✓ | RW | Real |
| 1101 | AddSub 2 Add This value is added to the value of Par 1100 [AddSub 2 Input]. The result will be subtracted from by Par 1102 and loaded into Par 1103 . See Par 1100 . Note: This parameter was added for firmware version 3.01. | Default: 1.0000 Min/Max: -/+2200000000.0000 | | ✓ | RW | Real |
| 1102 | AddSub 2 Subtrct This value is subtracted from the result of Par 1100 + Par 1101 . The result will be loaded into Par 1103 . See Par 1100 . Note: This parameter was added for firmware version 3.01. | Default: 1.0000 Min/Max: -/+2200000000.0000 | | ✓ | RW | Real |
| 1103 | AddSub 2 Result This is the result output from the Add and Subtract function. See Par 1100 . Equation: Par 1103 = (Par 1100 + Par 1101) - Par 1102 Note: This parameter was added for firmware version 3.01. | Default: 1.0000 Min/Max: -/+2200000000.0000 | | | RO | Real |
| 1104 | AddSub 3 Input Input value to be added to and/or subtracted from as need with the Add and Subtract function. This input will be added with Par 1105 [AddSub 3 Add]. The result will be subtracted from by the value in Par 1106 [AddSub 3 Subtrct]. The result of the operation is loaded to Par 1107 [AddSub 3 Result]. Equation: $\text{Par (1104 + Par 1105) - Par 1106 = Par 1107}$ Note: This parameter was added for firmware version 3.01. | Default: 1.0000 Min/Max: -/+2200000000.0000 | | ✓ | RW | Real |
| 1105 | AddSub 3 Add This value is added to the value of Par 1104 [AddSub 3 Input]. The result will be subtracted from by Par 1106 and loaded into Par 1107 . See Par 1104 . Note: This parameter was added for firmware version 3.01. | Default: 1.0000 Min/Max: -/+2200000000.0000 | | ✓ | RW | Real |
| 1106 | AddSub 3 Subtrct This value is subtracted from the result of Par 1104 + Par 1105 . The result will be loaded into Par 1107 . See Par 1104 . Note: This parameter was added for firmware version 3.01. | Default: 1.0000 Min/Max: -/+2200000000.0000 | | ✓ | RW | Real |
| 1107 | AddSub 3 Result This is the result output from the Add and Subtract function. See Par 1104 . Equation: Par 1107 = (Par 1104 + Par 1105) - Par 1106 Note: This parameter was added for firmware version 3.01. | Default: 1.0000 Min/Max: -/+2200000000.0000 | | | RO | Real |

| No. | Name Description | Values | | Linkable | Read-Write | Data Type | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|---------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------|----------|----------|------------|----------------|----------|----------|----------|----------|----------|----------|----------|------------|--------------|--------------|--------------|--------------|---------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|-----|----|----|----|----|----|----|---|---|---|---|---|---|---|---|---|---|--|--|--|--|
| 1108 | DelTmr1 TrigData Link a word to this parameter that will control a user-defined on or off delay timer. The bit within the selected word that will control the delay timer is set by Par 1109 [DelTmr1 Trig Bit]. The user-defined on/off delay timer is enabled by setting bit 6 "Delay Timer" of Par 1000 [UserFunct Enable]. <div><div><div>DelayTimer1PrSet (1110)</div><div>DelayTimer1 Data (1108)</div><div>DelayTimer1 Bit (1109)</div></div><div>Delay Timer 1</div><div><div>DelayTimer1Stats (1112)</div><div>DelayTimer1Accum (1111)</div></div><div><div>00 Enabled</div><div>00 Timing</div><div>00 Done</div></div></div> <p>Note: This parameter was added for firmware version 3.01.</p> | Default: 0 Min/Max: 32 bits of data | | ✓ | RW | 32-bit Boolean | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1109 | DelTmr1 Trig Bit Selects the bit, from the word linked to Par 1108 [DelTmr1 TrigData], that will change the status of the user-defined delay timer to on or off. When Par 1109 [DelTmr1 Trig Bit] is a positive number, the delay timer is an "on" timer. When Par 1109 is a negative number, the delay timer is an "off" timer. Note: This parameter was added for firmware version 3.01. | Default: 0 Min/Max: -/+32 | | | RW | 16-bit Integer | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1110 | DelayTimer1PrSet The time that the value in Par 1111 [DelayTimer1Accum] must reach before bit 2 "Timer Done" in Par 1112 [DelayTimer1Stats] is set. Note: This parameter was added for firmware version 3.01. | Units: Sec. Default: 0 Min/Max: 0/600.00 | | ✓ | RW | 16-bit Integer | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1111 | DelayTimer1Accum The amount of time that has elapsed since the timer was enabled (Par 1112 [DelayTimer1Stats], bit 2 set). Note: This parameter was added for firmware version 3.01. | Units: Sec. Default: 0 Min/Max: 0/600.00 | | | RO | 16-bit Integer | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1112 | DelayTimer1Stats Displays the status of the user-defined on or off delay timer. Bit 0 "Timer Enable" when this bit is set, the timer is enabled. Bit 1 "Timer Timing" when this bit is set, the timer is running. Bit 2 "Timer Done" when this bit is set, the timer is done. Note: This parameter was added for firmware version 3.01. <table><thead><tr><th>Options</th><th>Reserved</th><th>Reserved</th><th>Reserved</th><th>Reserved</th><th>Reserved</th><th>Reserved</th><th>Reserved</th><th>Reserved</th><th>Reserved</th><th>Reserved</th><th>Reserved</th><th>Reserved</th><th>Reserved</th><th>Timer Done</th><th>Timer Timing</th><th>Timer Enable</th></tr></thead><tbody><tr><td>Default</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td></tr><tr><td>Bit</td><td>15</td><td>14</td><td>13</td><td>12</td><td>11</td><td>10</td><td>9</td><td>8</td><td>7</td><td>6</td><td>5</td><td>4</td><td>3</td><td>2</td><td>1</td><td>0</td></tr></tbody></table> <p>0 = False 1 = True</p> | Options | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | Timer Done | Timer Timing | Timer Enable | Default | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | Bit | 15 | 14 | 13 | 12 | 11 | 10 | 9 | 8 | 7 | 6 | 5 | 4 | 3 | 2 | 1 | 0 | | | | |
| Options | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | Timer Done | Timer Timing | Timer Enable | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Default | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Bit | 15 | 14 | 13 | 12 | 11 | 10 | 9 | 8 | 7 | 6 | 5 | 4 | 3 | 2 | 1 | 0 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1113 | DelTmr2 TrigData Link a word to this parameter that will control a user-defined on or off delay timer. The bit within the selected word that will control the delay timer is set by Par 1114 [DelTmr2 Trig Bit]. The user-defined on/off delay timer is enabled by setting bit 6 "Delay Timer" of Par 1000 [UserFunct Enable]. <div><div><div>DelayTimer2PrSet (1115)</div><div>DelayTimer2 Data (1113)</div><div>DelayTimer2 Bit (1114)</div></div><div>Delay Timer 2</div><div><div>DelayTimer2Stats (1117)</div><div>DelayTimer2Accum (1116)</div></div><div><div>00 Enabled</div><div>00 Timing</div><div>00 Done</div></div></div> <p>Note: This parameter was added for firmware version 3.01.</p> | Default: 0 Min/Max: 32 bits of data | | ✓ | RW | 32-bit Boolean | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1114 | DelTmr2 Trig Bit Selects the bit, from the word linked to Par 1113 [DelTmr2 TrigData], that will change the status of the user-defined delay timer to on or off. When Par 1114 [DelTmr2 Trig Bit] is a positive number, the delay timer is an "on" timer. When Par 1114 is a negative number, the delay timer is an "off" timer. Note: This parameter was added for firmware version 3.01. | Default: 0 Min/Max: -/+32 | | ▲ | RW | 16-bit Integer | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1115 | DelayTimer2PrSet The time that the value in Par 1116 [DelayTimer2Accum] must reach before bit 2 "Timer Done" in Par 1117 [DelayTimer2Stats] is set. Note: This parameter was added for firmware version 3.01. | Units: Sec. Default: 0 Min/Max: 0/60000 | | ✓ | RW | 16-bit Integer | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1116 | DelayTimer2Accum The amount of time that has elapsed since the timer was enabled (Par 1117 [DelayTimer2Stats], bit 1 set). Note: This parameter was added for firmware version 3.01. | Units: Sec. Default: 0 Min/Max: 0/60000 | | | RO | 16-bit Integer | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

| No. | Name Description | Values | | | | Linkable | Read-Write | Data Type | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
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| 1117 | DelayTimer2Stats Displays the status of the user-defined on or off delay timer. Bit 0 "Timer Enable" when this bit is set, the timer is enabled. Bit 1 "Timer Timing" when this bit is set, the timer is running. Bit 2 "Timer Done" when this bit is set, the timer is done. Note: This parameter was added for firmware version 3.01. Options <table><tr><td></td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Timer Done</td><td>Timer Timing</td><td>Timer Enable</td></tr><tr><td>Default</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td></tr><tr><td>Bit</td><td>15</td><td>14</td><td>13</td><td>12</td><td>11</td><td>10</td><td>9</td><td>8</td><td>7</td><td>6</td><td>5</td><td>4</td><td>3</td><td>2</td><td>1</td><td>0</td></tr></table> 0 = False 1 = True | | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | Timer Done | Timer Timing | Timer Enable | Default | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | Bit | 15 | 14 | 13 | 12 | 11 | 10 | 9 | 8 | 7 | 6 | 5 | 4 | 3 | 2 | 1 | 0 | | | | | |
| | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | Timer Done | Timer Timing | Timer Enable | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Default | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Bit | 15 | 14 | 13 | 12 | 11 | 10 | 9 | 8 | 7 | 6 | 5 | 4 | 3 | 2 | 1 | 0 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1120 | Home Accel Time Acceleration rate when Homing. Note: This parameter was added for firmware version 3.01. | Units: Default: 10.00 Min/Max: 0.01/6553.50 | Sec. | | | ✓ | RW | Real | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1121 | Home Decel Time Deceleration rate when Homing. Note: This parameter was added for firmware version 3.01. | Units: Default: 10.00 Min/Max: 0.01/6553.50 | Sec. | | | ✓ | RW | Real | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1122 | Home Speed Speed reference used when Homing. Notes: This parameter was added for firmware version 3.01. The default value was changed from "0.000" to "0.005" for firmware version 4.001. | Units: Default: 0.005 Min/Max: +/- 8.000 | RPM | | | ✓ | RW | Real | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1123 | Home Position User-defined Home position. After the Homing function is completed, the following parameters are updated with the value of Par 1123: Par 744 [PositRef EGR Out], Par 747 [Position Cmmnd], Par 763 [Position Actual] and Par 765 [Posit Actl Load]. Note: This parameter was added for firmware version 3.01. This parameter was activated for firmware version 4.001. | Default: 0 Min/Max: +/- 2147483648 | | | | ✓ | RW | 32-bit Integer | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1124 |  Home Actual Pos Actual home position after the Homing function is complete. The value in this parameter displays the raw position feedback data at home position. Note: This parameter was added for firmware version 4.001. | Default: 0 Min/Max: +/- 2147483648 | | | | | RO | 32-bit Integer | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1125 | DC Brake Level Defines the DC brake current level injected into the motor when "DC Brake" is selected as a stop mode. This also sets the braking current level when "Fast Stop" is selected. The DC braking voltage used in this function is created by a PWM algorithm and may not generate the smooth holding force needed for some applications. Refer to the <i>PowerFlex 700S with Phase II Control Reference Manual</i> , publication PFLEX-RM003. Note: This parameter was added for future use - not active for use with firmware version 3.01. | Units: Default: 0.0 Min/Max: 0.0/1170.0 | Volts | | | ✓ | RW | Real | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <div> ATTENTION: If a hazard of injury due to movement of equipment or material exists, an auxiliary mechanical braking device must be used.</div> <div>ATTENTION: This feature should not be used with synchronous or permanent magnet motors. Motors may be demagnetized during braking.</div> | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1126 | DC Brake Time Sets the amount of time DC brake current is "injected" into the motor. Note: This parameter was added for future use - not active for use with firmware version 3.01. | Units: Default: 0.0 Min/Max: 0.0/655.0 | Sec. | | | ✓ | RW | Real | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1130 | PPMP Pos Command Sets the position reference for the Motion Planner. The units are counts. Note: This parameter was added for firmware version 3.01. | Default: 0 Min/Max: +/- 2147483648 | | | | ✓ | RW | 32-bit Integer | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1131 | PPMP Pos Mul Part of the input scale block. Set this value as the multiplier to the value of Par 1130 [PPMP Pos Command]. Also see Par 1132 [PPMP Pos Div]. The scale block is enabled by setting bit 4 of Par 1134 [PPMP Control]. The the intermediate product must be < 31 bits. Note: This parameter was added for firmware version 3.01. | Default: 1 Min/Max: 1/2000000 | | | | ✓ | RW | 32-bit Integer | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1132 | PPMP Pos Div Part of input scale block. Set this value as the divisor of the product of Par 1130 [PPMP Pos Command] and Par 1131 [PPMP Pos Mul]. Integer math applies. The scale block is enabled by setting bit 4 of Par 1134 [PPMP Control]. Note: This parameter was added for firmware version 3.01. | Default: 1 Min/Max: 1/2000000 | | | | ✓ | RW | 32-bit Integer | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

| No. | Name Description | Values | | | Linkable | Read-Write | Data Type |
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| 1133 | PPMP Scaled Cmd Indicates the result of integer scaling of the position reference for the Motion planner or the Position loop. The units are counts. Note: This parameter was added for firmware version 3.01. | Default: 0 Min/Max: +/- 2147483648 | | | | RO | 32-bit Integer |
| 1134 | PPMP Control Establishes the operating condition for the Motion Planner. The operating mode(s) is selected if the corresponding bit is set. Bit 0 "Absolute" Absolute mode. When using the Homing function while in Absolute mode, the value in Par 758 [Pt-Pt Posit Ref] must be set relative to the value in Par 763 [Position Actual] after homing is complete. For example: When homing is complete Par 763 [Position Actual] = 1000 counts. If you want to move to an absolute position of 2000 counts relative to the home switch, you must enter a value of 3000 counts into Par 758 [Pt-Pt Posit Ref] (i.e., 1000 + 2000 = 3000). If you want to move back to the home switch, using the same value in Par 763 [Position Actual] after homing (1000), you must enter a value of 1000 into Par 758 [Pt-Pt Posit Ref] (i.e., 0 + 1000 = 1000). Bit 1 "Incremental" Incremental mode Bit 2 "Start" Start Bit 4 "Scaling En" Scaling enabled Bit 5 "Over Ride En" Override enabled Bit 6 "S Curve En" S Curve Enabled Bit 7 "Cond Hold" Conditional Hold Bit 8 "Pause" Pause Bit 9 "Re-Synch" Re-Synch Note: This parameter was added for firmware version 3.01. | | | | | | |
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| No. | Name Description | Values | | | Linkable | Read-Write | Data Type |
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| 1143 | PPMP Pos Output Provides a position reference output from the Motion Planner. This output is scaled in counts. Typically this parameter would be used by the drive's Position Loop. A link could be made from auxiliary position input to this parameter. Note: This parameter was added for firmware version 3.01. | Default: 0.0 Min/Max: +/- 2147483648.0 | | | | RO | Real |
| 1144 | PPMP Pos To Go Provides indication of feedback counts remaining in the move. Note: This parameter was added for firmware version 3.01. | Default: 0.0 Min/Max: +/- 2147483648.0 | | | | RO | Real |
| 1145 | PPMP TP Select Motion Planner test point selection. Notes: This parameter was added for firmware version 3.01. Selection 9 was changed to "Reserved" for firmware version 4.001. | Default: 0 = "Zero" Options: 0 = "Zero" 17 = "MP Mtn Calc" 1 = "MP FrctAccm1" 18 = "MP AnlgPulse" 2 = "MP WholeAccm" 19 = "MP Rate In" 3 = "MP EPR" 20 = "MP Rate Out" 4 = "MP NBase" 21 = "MP Gain" 5 = "MP Once Flag" 22 = "MP Kx" 6 = "MP Pos Fdbk" 23 = "MP FrctAccmR" 7 = "MP Pos Fdbk1" 24 = "MP AccelRate" 8 = "MP ErrorSum" 25 = "MP DecelRate" 9 = "Reserved" 26 = "MP Cal" 10 = "MP IntegHold" 27 = "SC Sum" 11 = "MP Pos Exact" 28 = "SC Index" 12 = "MP Pos Diff" 29 = "SC ArraySize" 13 = "MP One Shot" 30 = "SC Once" 14 = "MP Run Delay" 31 = "SC Enable" 15 = "MP ResyncOne" 32 = "SC Ipos" 16 = "MP Task Time" | | | | | |
| 1146 | PPMP TP DataDInt Test point integer data. This data is meaningful only if the selection at Par 1145 [PPMP TP Select] is integer data. Note: This parameter was added for firmware version 3.01. | Default: 0.0 Min/Max: +/- 2147483648.0 | | | | RO | 32-bit Integer |
| 1147 | PPMP TP DataReal Test point real data. This data is meaningful only if the selection at Par 1145 [PPMP TP Select] is not integer data. Note: This parameter was added for firmware version 3.01. | Default: 0.0 Min/Max: +/-2200000000.0 | | | | RO | Real |
| 1150 | DInt2Real2 In Input value for a second DInt to Real value conversion. Note: This parameter was added for firmware version 3.01. | Default: 0 Min/Max: +/-2147483648.0 | | | ✓ | RW | 32-bit Integer |
| 1151 | DInt2Real2 Scale Input value to scale the second conversion from DInt to Real. This is a multiplication to the input value after conversion to a Real value. Note: This parameter was added for firmware version 3.01. | Default: 0.0 Min/Max: +/-2200000000.0 | | | ✓ | RW | Real |
| 1152 | DInt2Real2Result This is the resultant output of the second conversion form a DInt value to a Real value after scaling. Note: This parameter was added for firmware version 3.01. | Default: 0.0 Min/Max: +/-2200000000.0 | | | | RO | Real |
| 1155 | Heidn VM Pos Ref Virtual Master position reference for the Heidenhain option card. This value is used by the Virtual Master function as a position reference. This parameter can be linked to a position reference source, such as Par 1160 [VirtEncPositFast]. Note: This parameter was added for firmware version 4.001. | Default: 0.0 Min/Max: +/-2147483648.0 | | | ✓ | RW | 32-bit Integer |
| 1156 |  Heidn VM Enc PPR Virtual Master Encoder Pulse per Revolution (PPR). This value defines the encoder PPR for the Virtual Master function. The Heidenhain option card produces the encoder pulse according to this PPR value, which is limited to 1024 or 2048 encoder lines. Note: This parameter was added for firmware version 4.001. | Units: PPR Default: 1024 Min/Max: 1024 and 2048 only | | | | RW | 32-bit Integer |
| 1160 | VirtEncPositFast Virtual Encoder position output in Task 1. One of three outputs from the Virtual Encoder function. This value is the encoder position reference output for Task1 (fast rate). Par 62 [Virt Encdr Posit] and Par 63 [Virt Encdr Dlyed] are the encoder position output in Task 2. For the Virtual Master Encoder function, you must use Par 1160 [VirtEncPositFast] as the position reference updated in Task 1. Note: This parameter was added for firmware version 4.001. | Default: 0.0 Min/Max: +/-2147483648.0 | | | | RO | 32-bit Integer |

| No. | Name Description | Values | | | Linkable | Read-Write | Data Type | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
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| 1161 | EGR Config Configuration for the Electrical Gear Ratio (EGR) user function. Setting bit 7 “EGR” of Par 1000 [UserFunc Enable] enables the EGR user function. The combination of bit 0 “Output Sel 0” and bit 1 “Output Sel 1” determines the output of the EGR user function as follows: <table><tr><th>Bit 1</th><th>Bit 0</th><th>Description</th></tr><tr><td>0</td><td>0</td><td>Par 1165 [EGR Pos Output] is set to zero</td></tr><tr><td>0</td><td>1</td><td>Par 1165 [EGR Pos Output] is active</td></tr><tr><td>1</td><td>0</td><td>Par 1165 [EGR Pos Output] is set to the value of Par 1164 [EGR Pos Input]</td></tr><tr><td>1</td><td>1</td><td>Par 1165 [EGR Pos Output] is set to the value of Par 1166 [EGR Pos preset]</td></tr></table> Note: This parameter was added for firmware version 4.001. Options <table><tr><th></th><th>Reserved</th><th>Reserved</th><th>Reserved</th><th>Reserved</th><th>Reserved</th><th>Reserved</th><th>Reserved</th><th>Reserved</th><th>Reserved</th><th>Reserved</th><th>Reserved</th><th>Reserved</th><th>Reserved</th><th>Reserved</th><th>Output Sel 1</th><th>Output Sel 0</th></tr><tr><td>Default</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td></tr><tr><td>Bit</td><td>15</td><td>14</td><td>13</td><td>12</td><td>11</td><td>10</td><td>9</td><td>8</td><td>7</td><td>6</td><td>5</td><td>4</td><td>3</td><td>2</td><td>1</td><td>0</td></tr></table> 0 = False 1 = True | Bit 1 | Bit 0 | Description | 0 | 0 | Par 1165 [EGR Pos Output] is set to zero | 0 | 1 | Par 1165 [EGR Pos Output] is active | 1 | 0 | Par 1165 [EGR Pos Output] is set to the value of Par 1164 [EGR Pos Input] | 1 | 1 | Par 1165 [EGR Pos Output] is set to the value of Par 1166 [EGR Pos preset] | | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | Output Sel 1 | Output Sel 0 | Default | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | Bit | 15 | 14 | 13 | 12 | 11 | 10 | 9 | 8 | 7 | 6 | 5 | 4 | 3 | 2 | 1 | 0 | | | | |
| Bit 1 | Bit 0 | Description | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 0 | 0 | Par 1165 [EGR Pos Output] is set to zero | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 0 | 1 | Par 1165 [EGR Pos Output] is active | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1 | 0 | Par 1165 [EGR Pos Output] is set to the value of Par 1164 [EGR Pos Input] | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1 | 1 | Par 1165 [EGR Pos Output] is set to the value of Par 1166 [EGR Pos preset] | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | Reserved | Output Sel 1 | Output Sel 0 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Default | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Bit | 15 | 14 | 13 | 12 | 11 | 10 | 9 | 8 | 7 | 6 | 5 | 4 | 3 | 2 | 1 | 0 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1162 | EGR Mul Multiplier (numerator) of the EGR user function position input. (Par 1164 [EGR Pos Input] x Par 1162 [EGR Mul]) / Par 1163 [EGR Div] = Par 1165 [EGR Pos Output] Note: This parameter was added for firmware version 4.001. | Default: 1.0 Min/Max: +/-2000000.0 | | | ✓ | RW | 32-bit Integer | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1163 | EGR Div Divisor (denominator) of the EGR user function position input. (Par 1164 [EGR Pos Input] x Par 1162 [EGR Mul]) / Par 1163 [EGR Div] = Par 1165 [EGR Pos Output] Note: This parameter was added for firmware version 4.001. | Default: 1.0 Min/Max: +/-2000000.0 | | | ✓ | RW | 32-bit Integer | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1164 | EGR Pos Input Position reference input to the Electrical Gear Ratio user function. This parameter can be linked to a position reference source, such as Par 1160 [VirtEncPositFast]. Note: This parameter was added for firmware version 4.001. | Default: 0.0 Min/Max: +/-2147483648.0 | | | ✓ | RW | 32-bit Integer | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1165 | EGR Pos Output Position reference output from the Electrical Gear Ratio user function. This parameter can be linked to a position reference sink, such as Par 1155 [Heidn VM Pos Ref]. Note: This parameter was added for firmware version 4.001. | Default: 0.0 Min/Max: +/-2147483648.0 | | | | RO | 32-bit Integer | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1166 | EGR Pos Preset A preset value for the Electrical Gear Ratio user function. This value is set to the value in Par 1165 [EGR Pos Output] when bits 0 “Output Sel 0” and 1 “Output Sel 1” of Par 1161 [EGR Config] are set. Note: This parameter was added for firmware version 4.001. | Default: 0.0 Min/Max: +/-2147483648.0 | | | ✓ | RW | 32-bit Integer | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1170 | MC Generic 1 For Future Use. Note: This parameter was added for firmware version 4.001. | Default: 0 Min/Max: +/-32767 | | | | RW | 16-bit Integer | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1171 | MC Generic 2 For Future Use. Note: This parameter was added for firmware version 4.001. | Default: 0 Min/Max: +/-32767 | | | | RW | 16-bit Integer | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1172 | MC Generic 3 For Future Use. Note: This parameter was added for firmware version 4.001. | Default: 0 Min/Max: +/-32767 | | | | RW | 16-bit Integer | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1173 | MC Generic 4 For Future Use. Note: This parameter was added for firmware version 4.001. | Default: 0 Min/Max: +/-32767 | | | | RW | 16-bit Integer | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1174 | MC Generic 5 For Future Use. Note: This parameter was added for firmware version 4.001. | Default: 0 Min/Max: +/-32767 | | | | RW | 16-bit Integer | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1175 | MC Generic 6 For Future Use. Note: This parameter was added for firmware version 4.001. | Default: 0 Min/Max: +/-32767 | | | | RW | 16-bit Integer | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1176 | MC Generic 7 For Future Use. Note: This parameter was added for firmware version 4.001. | Default: 0 Min/Max: +/-32767 | | | | RW | 16-bit Integer | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1177 | MC Generic 8 For Future Use. Note: This parameter was added for firmware version 4.001. | Default: 0 Min/Max: +/-32767 | | | | RW | 16-bit Integer | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

| No. | Name Description | Values | | | Linkable | Read-Write | Data Type |
|------|-------------------------------------------------------------------------------------------------------|---------------------------------|--|--|----------|------------|----------------|
| 1178 | MC Generic 9 For Future Use. Note: This parameter was added for firmware version 4.001. | Default: 0 Min/Max: +/-32767 | | | | RW | 16-bit Integer |
| 1179 | MC Generic 10 For Future Use. Note: This parameter was added for firmware version 4.001. | Default: 0 Min/Max: +/-32767 | | | | RW | 16-bit Integer |

Parameter Cross Reference By Name

| Param Name Text | Parameter # |
|------------------|-------------|
| % Motor Flux | 309 |
| +Hrd OvrTrvlCnfg | 397 |
| +Sft OvrTrvlCnfg | 395 |
| 700L AlarmStatus | 334 |
| 700L EventStatus | 332 |
| 700L FaultStatus | 333 |
| Abs OverSpd Lim | 335 |
| Abs Posit Offset | 757 |
| Accel Time 1 | 32 |
| Act Spd Reg BW | 97 |
| CurrFdbk AdjTime | 551 |
| AddSub 1 Add | 1097 |
| AddSub 1 Input | 1096 |
| AddSub 1 Result | 1099 |
| AddSub 1 Subtrct | 1098 |
| AddSub 2 Add | 1101 |
| AddSub 2 Input | 1100 |
| AddSub 2 Result | 1103 |
| AddSub 2 Subtrct | 1102 |
| AddSub 3 Add | 1105 |
| AddSub 3 Input | 1104 |
| AddSub 3 Result | 1107 |
| AddSub 3 Subtrct | 1106 |
| AI 1 Filt Gain | 804 |
| AI 2 Filt Gain | 810 |
| AI 3 Filt Gain | 816 |
| Alarm Status 1 | 326 |
| Alarm Status 2 | 327 |
| Alarm Status 3 | 328 |
| Analog I/O Units | 821 |
| Anlg In1 Data | 800 |
| Anlg In1 Filt BW | 805 |
| Anlg In1 Offset | 803 |
| Anlg In1 Scale | 802 |
| Anlg In1 Sel | 818 |
| Anlg In1 Value | 801 |
| Anlg In1LossCnfg | 1093 |
| Anlg In2 Data | 806 |
| Anlg In2 Filt BW | 811 |
| Anlg In2 Offset | 809 |
| Anlg In2 Scale | 808 |
| Anlg In2 Sel | 819 |
| Anlg In2 Value | 807 |
| Anlg In2LossCnfg | 1094 |
| Anlg In3 Data | 812 |
| Anlg In3 Filt BW | 817 |
| Anlg In3 Offset | 815 |
| Anlg In3 Scale | 814 |
| Anlg In3 Sel | 820 |
| Anlg In3 Value | 813 |
| Anlg In3LossCnfg | 1095 |

| Param Name Text | Parameter # |
|------------------|-------------|
| Anlg Out1 DInt | 832 |
| Anlg Out1 Offset | 834 |
| Anlg Out1 Real | 833 |
| Anlg Out1 Scale | 835 |
| Anlg Out1 Sel | 831 |
| Anlg Out1 Value | 837 |
| Anlg Out1 Zero | 836 |
| Anlg Out2 DInt | 839 |
| Anlg Out2 Offset | 841 |
| Anlg Out2 Real | 840 |
| Anlg Out2 Scale | 842 |
| Anlg Out2 Sel | 838 |
| Anlg Out2 Value | 844 |
| Anlg Out2 Zero | 843 |
| Applied LogicCmd | 152 |
| Atune Spd Ref | 74 |
| Atune Trq Ref | 129 |
| Auto/Manual Cnfg | 649 |
| Aux Posit Ref | 743 |
| BasicIdx Output | 799 |
| BasicIdx Preset | 798 |
| BasicIdx Step | 797 |
| BitSwap 1 Result | 864 |
| BitSwap 1A Bit | 861 |
| BitSwap 1A Data | 860 |
| BitSwap 1B Bit | 863 |
| BitSwap 1B Data | 862 |
| BitSwap 2 Result | 869 |
| BitSwap 2A Bit | 866 |
| BitSwap 2A Data | 865 |
| BitSwap 2B Bit | 868 |
| BitSwap 2B Data | 867 |
| BitSwap 3 Result | 874 |
| BitSwap 3A Bit | 871 |
| BitSwap 3A Data | 870 |
| BitSwap 3B Bit | 873 |
| BitSwap 3B Data | 872 |
| BitSwap 4 Result | 879 |
| BitSwap 4A Bit | 876 |
| BitSwap 4A Data | 875 |
| BitSwap 4B Bit | 878 |
| BitSwap 4B Data | 877 |
| BitSwap 5 Result | 884 |
| BitSwap 5A Bit | 881 |
| BitSwap 5A Data | 880 |
| BitSwap 5B Bit | 883 |
| BitSwap 5B Data | 882 |
| BitSwap 6 Result | 889 |
| BitSwap 6A Bit | 886 |
| BitSwap 6A Data | 885 |
| BitSwap 6B Bit | 888 |
| BitSwap 6B Data | 887 |
| Brake OL Cnfg | 369 |
| Brake PulseWatts | 416 |

| Param Name Text | Parameter # |
|--------------------|-------------|
| Brake TP Data | 419 |
| Brake TP Sel | 418 |
| Brake Watts | 417 |
| Brake/Bus Cnfg | 414 |
| Break Frequency | 530 |
| Break Voltage | 529 |
| Bus Reg ACR Kp | 548 |
| Bus Reg Kd | 547 |
| Bus Reg Ki | 545 |
| Bus Reg Kp | 546 |
| Bus Util Limit | 500 |
| BusReg/Brake Ref | 415 |
| BusUndervoltCnfg | 393 |
| Cnv NotLogin Cfg | 368 |
| Coarse Spd Trgt | 750 |
| CoarsePosit Trgt | 748 |
| Compare 1A | 1071 |
| Compare 1B | 1072 |
| Compare 2A | 1073 |
| Compare 2B | 1074 |
| Control Options | 153 |
| CurrFdbk AdjTime | 551 |
| Current Limit Gain | 362 |
| Current Reg BW | 503 |
| Curr Ref TP Data | 358 |
| Curr Ref TP Sel | 357 |
| DC Brake Level | 1125 |
| DC Brake Time | 1126 |
| DC Bus Voltage | 306 |
| Dead Time | 404 |
| Dead Time Comp | 405 |
| Decel Time 1 | 33 |
| Delayed Spd Ref | 45 |
| DelayTimer1Accum | 1111 |
| DelayTimer1PrSet | 1110 |
| DelayTimer1Stats | 1112 |
| DelayTimer2Accum | 1116 |
| DelayTimer2PrSet | 1115 |
| DelayTimer2Stats | 1117 |
| DelTmr1 Trig Bit | 1109 |
| DelTmr1 TrigData | 1108 |
| DelTmr2 Trig Bit | 1114 |
| DelTmr2 TrigData | 1113 |
| DeltaSpeedScale | 60 |
| Dig In1 Sel | 825 |
| Dig In2 Sel | 826 |
| Dig In3 Sel | 827 |
| Dig In4 Sel | 828 |
| Dig In5 Sel | 829 |
| Dig In6 Sel | 830 |
| Dig Out1 Bit | 847 |
| Dig Out1 Data | 846 |
| Dig Out1 OffTime | 849 |
| Dig Out1 On Time | 848 |

| Param Name Text | Parameter # |
|------------------|-------------|
| Dig Out1 Sel | 845 |
| Dig Out2 Bit | 852 |
| Dig Out2 Data | 851 |
| Dig Out1 OffTime | 854 |
| Dig Out2 On Time | 853 |
| Dig Out2 Sel | 850 |
| DigIn ConfigStat | 159 |
| DigIn Debounce | 823 |
| DInt2Real1 In | 1047 |
| DInt2Real1 Scale | 1048 |
| DInt2Real1Result | 1049 |
| DInt2Real2 In | 1150 |
| DInt2Real2 Scale | 1151 |
| DInt2Real2Result | 1152 |
| Direction Mask | 673 |
| Direction Owner | 680 |
| DPI CommLoss Cfg | 391 |
| DPI Data In A1 | 651 |
| DPI Data In A2 | 652 |
| DPI Data In B1 | 653 |
| DPI Data In B2 | 654 |
| DPI Data In C1 | 655 |
| DPI Data In C2 | 656 |
| DPI Data In D1 | 657 |
| DPI Data In D2 | 658 |
| DPI Data Out A1 | 660 |
| DPI Data Out A2 | 661 |
| DPI Data Out B1 | 662 |
| DPI Data Out B2 | 663 |
| DPI Data Out C1 | 664 |
| DPI Data Out C2 | 665 |
| DPI Data Out D1 | 666 |
| DPI Data Out D2 | 667 |
| DPI In DataType | 650 |
| DPI Out DataType | 659 |
| Drive Logic Rslt | 158 |
| Drive OL JnctTmp | 345 |
| Drive OL Status | 346 |
| Drive OL TP Data | 348 |
| Drive OL TP Sel | 347 |
| Drive Ramp Rslt | 53 |
| EGR Config | 1161 |
| EGR Div | 1163 |
| EGR Mul | 1162 |
| EGR Pos Input | 1164 |
| EGR Pos Output | 1165 |
| EGR Pos Preset | 1166 |
| Elapsed MWHrs | 299 |
| Elapsed Run Time | 298 |
| Encdr 0/1 Config | 233 |
| Encdr 0/1 Error | 234 |
| Encdr0 Position | 230 |
| Encdr0 Spd Fdbk | 231 |
| Encdr1 Position | 240 |

| Param Name Text | Parameter # |
|------------------|-------------|
| Encdr1 Spd Fdbk | 241 |
| Encoder0 PPR | 232 |
| Encoder1 PPR | 242 |
| Err Count Lmt | 589 |
| Est Theta Delay | 477 |
| Estimated Torque | 471 |
| Exception Event1 | 320 |
| Exception Event2 | 321 |
| Exception Event3 | 322 |
| External DB Res | 544 |
| Ext Flt/Alm Cnfg | 379 |
| Fault Clr Mask | 674 |
| Fault Clr Owner | 681 |
| Fault Status 1 | 323 |
| Fault Status 2 | 324 |
| Fault Status 3 | 325 |
| Fault TP Data | 330 |
| Fault TP Sel | 329 |
| FB Opt0 Posit | 250 |
| FB Opt0 Spd Fdbk | 251 |
| FB Opt1 Posit | 252 |
| FB Opt1 Spd Fdbk | 253 |
| Fdbk LsCnfg Alt | 366 |
| Fdbk LsCnfg Pri | 365 |
| Fdbk LsCnfgPosit | 367 |
| Fdbk Option ID | 249 |
| FdbkAxis FdbkSel | 701 |
| FdbkAxis FdbkVal | 702 |
| FdbkAxis RotFdbk | 709 |
| FdbkAxisUnwdFdbk | 710 |
| Filtered SpdFdbk | 71 |
| Flux Current | 488 |
| Flux Rate Limit | 425 |
| Flux Ratio Ref | 424 |
| Flux Reg I Gain | 444 |
| Flux Reg P Gain1 | 443 |
| Flux Reg P Gain2 | 470 |
| Flux Satur Coef | 426 |
| Flx CurFdbk (Id) | 489 |
| Flx LpassFilt BW | 361 |
| Flying StartGain | 170 |
| FR Sys Inertia | 1081 |
| FricComp Rated | 68 |
| FricComp Setup | 65 |
| FricComp Slip | 67 |
| FricComp Spd Ref | 64 |
| FricComp Stick | 66 |
| FricComp Trq Add | 69 |
| From DL DataType | 601 |
| FromDriveLogix00 | 602 |
| FromDriveLogix01 | 603 |
| FromDriveLogix02 | 604 |
| FromDriveLogix03 | 605 |
| FromDriveLogix04 | 606 |

| Param Name Text | Parameter # |
|------------------|-------------|
| FromDriveLogix05 | 607 |
| FromDriveLogix06 | 608 |
| FromDriveLogix07 | 609 |
| FromDriveLogix08 | 610 |
| FromDriveLogix09 | 611 |
| FromDriveLogix10 | 612 |
| FromDriveLogix11 | 613 |
| FromDriveLogix12 | 614 |
| FromDriveLogix13 | 615 |
| FromDriveLogix14 | 616 |
| FromDriveLogix15 | 617 |
| FromDriveLogix16 | 618 |
| FromDriveLogix17 | 619 |
| FromDriveLogix18 | 620 |
| FromDriveLogix19 | 621 |
| FromDriveLogix20 | 622 |
| FVC CEMF Comp | 469 |
| FVC Mode Config | 510 |
| FVC Tune Config | 515 |
| FVC2 Mode Config | 511 |
| FVC2 Tune Config | 516 |
| FW Functions En | 147 |
| FW FunctionsActl | 149 |
| FW TaskTime Actl | 148 |
| FW TaskTime Sel | 146 |
| Fwd Speed Limit | 76 |
| Hardware Present | 145 |
| Heatsink Temp | 313 |
| Heidenhain0 Cnfg | 263 |
| Heidenhain0 Stat | 264 |
| Heidn Encdr PPR | 267 |
| Heidn Encdr Type | 266 |
| Heidn Mkr Offset | 265 |
| Heidn VM Enc PPR | 1155 |
| Heidn VM Pos Ref | 1156 |
| HiHp InPhsLs Cfg | 370 |
| HIM Manual Mask | 675 |
| HIM Manual Owner | 682 |
| Home Accel Time | 1120 |
| Home Actual Pos | 1124 |
| Home Decel Time | 1121 |
| Home Position | 1123 |
| Home Speed | 1122 |
| -Hrd OvrTrvlCnfg | 398 |
| IdsCmd Slew Rate | 586 |
| IdsCompCoeff Mot | 459 |
| IdsCompCoeff Reg | 460 |
| Ids Command | 496 |
| Ids Integ Freq | 429 |
| Ids Reg P Gain | 430 |
| In Posit BW | 782 |
| In Posit Dwell | 783 |
| Inert Adapt BW | 133 |
| Inert Adapt Gain | 134 |

| Param Name Text | Parameter # |
|------------------|-------------|
| Inert Adapt Sel | 132 |
| Inertia SpeedRef | 56 |
| Inertia Trq Add | 59 |
| Inertia TrqLpfBW | 54 |
| InertiaAccelGain | 57 |
| InertiaDecelGain | 58 |
| Interp AccelRate | 752 |
| Interp Flt Cnfg | 378 |
| Interp Position | 749 |
| Interp Speed | 751 |
| Interp SyncInput | 693 |
| Inv OL Pend Cnfg | 376 |
| Inv OL Trip Cnfg | 377 |
| Inv OT Pend Cnfg | 375 |
| Iq Actual Lim | 353 |
| Iq Actual Ref | 350 |
| Iq Rate Limit | 354 |
| Iq Ref Limited | 355 |
| Iq Ref Trim | 351 |
| Iqs Command | 495 |
| Iqs Integ Freq | 421 |
| Iqs Rate Limit | 423 |
| Iqs Reg P Gain | 422 |
| Ireg IGain Fctr | 428 |
| Is Actual Lim | 352 |
| Iu Offset | 453 |
| Iw Offset | 454 |
| Jerk | 42 |
| Jog Mask | 672 |
| Jog Owner | 679 |
| Jog Speed 1 | 29 |
| Jog Speed 2 | 39 |
| Kd Current Limit | 364 |
| Ki Current Limit | 363 |
| Language | 201 |
| Leak Indc Satur1 | 493 |
| Leak Indc Satur2 | 494 |
| Leak Inductance | 492 |
| LED Status | 554 |
| Lgx Closed Cnfg | 388 |
| Lgx Comm Format | 600 |
| Lgx CommLossData | 385 |
| Lgx LinkChngCnfg | 389 |
| Lgx OutOfRunCnfg | 386 |
| Lgx Timeout Cnfg | 387 |
| LimGen X axis In | 206 |
| LimGen Y axis Mn | 205 |
| LimGen Y axis Mx | 204 |
| Limit Gen Hi Out | 207 |
| Limit Gen Lo Out | 208 |
| Limit Status | 304 |
| Limited Spd Ref | 41 |
| Lin1 Update Rate | 289 |
| Lin1Stahl Status | 291 |

| Param Name Text | Parameter # |
|------------------|-------------|
| Line Undervolts | 409 |
| Linear1 Config | 285 |
| Linear1 CPR | 290 |
| Linear1 Status | 286 |
| Linear1 TP Data | 288 |
| Linear1 TP Sel | 287 |
| Load Estimate | 221 |
| Load Frm UserSet | 198 |
| Local I/O Status | 824 |
| Logic 1A Bit | 1064 |
| Logic 1A Data | 1063 |
| Logic 1B Bit | 1066 |
| Logic 1B Data | 1065 |
| Logic 2A Bit | 1068 |
| Logic 2A Data | 1067 |
| Logic 2B Bit | 1070 |
| Logic 2B Data | 1069 |
| Logic Command | 151 |
| Logic Config | 1061 |
| Logic Ctrl State | 157 |
| Logic Mask | 670 |
| Logic Mask Act | 713 |
| Logic State Mach | 150 |
| Logic Status | 155 |
| Logic TP Data | 162 |
| Logic TP Sel | 161 |
| Logic/Cmpr State | 1062 |
| LstFaultStopMode | 331 |
| Max Spd Ref Lim | 31 |
| Maximum Freq | 532 |
| Maximum Voltage | 531 |
| MC Build Number | 456 |
| MC Cmd Lim Cnfg | 382 |
| MC Diag Done | 519 |
| MC Diag Error 1 | 463 |
| MC Diag Error 2 | 464 |
| MC Diag Error 3 | 465 |
| MC Diag Status | 518 |
| MC FaultTPSelect | 475 |
| MC FaultTP Value | 476 |
| MC Firmware Rev | 457 |
| MC Generic 1 | 1170 |
| MC Generic 2 | 1171 |
| MC Generic 3 | 1172 |
| MC Generic 4 | 1173 |
| MC Generic 5 | 1174 |
| MC Generic 6 | 1175 |
| MC Generic 7 | 1176 |
| MC Generic 8 | 1177 |
| MC Generic 9 | 1178 |
| MC Generic 10 | 1179 |
| MC Status | 555 |
| MC TP1 Bit | 468 |
| MC TP1 Select | 466 |

| Param Name Text | Parameter # |
|------------------|-------------|
| MC TP1 Value | 467 |
| MC TP2 Select | 473 |
| MC TP2 Value | 474 |
| Min Flux | 360 |
| Min Spd Ref Lim | 30 |
| MOP Control | 1086 |
| MOP High Limit | 1088 |
| MOP Level DInt | 1092 |
| MOP Level Real | 1090 |
| MOP Low Limit | 1089 |
| MOP Rate | 1087 |
| MOP Scale DInt | 1091 |
| Motn Axis Resp | 689 |
| Motn Axis Status | 687 |
| Motn AxisControl | 688 |
| Motn Cnct Status | 690 |
| Motn CoarseMulti | 685 |
| Motn Config | 686 |
| Motn Event Ctrl | 692 |
| Motn EventStatus | 691 |
| Motn Mx Neg Trvl | 695 |
| Motn Mx Pos Trvl | 694 |
| Motn Posit Cmmd | 698 |
| Motn Posit Sync | 700 |
| Motn PositErrTol | 696 |
| Motn RotaryCmmd | 705 |
| Motn Speed Cmmd | 699 |
| Motn TP Select | 703 |
| Motn TP Value | 704 |
| MotnCnfgErrParam | 711 |
| MotnPositLockTol | 697 |
| MotnUnwdTurnCmmd | 706 |
| MotnUpdatePeriod | 684 |
| Motor Ctrl Ackn | 167 |
| Motor Ctrl Cmmd | 166 |
| Motor Ctrl Mode | 485 |
| Motor Flux Est | 359 |
| Motor Freq Ref | 296 |
| Motor NP FLA | 2 |
| Motor NP Hertz | 3 |
| Motor NP Power | 5 |
| Motor NP RPM | 4 |
| Motor NP Volts | 1 |
| Motor NTC Coef | 487 |
| Motor OL Factor | 336 |
| Motor Poles | 7 |
| Motor Posit Est | 227 |
| Motor Spd Fdbk | 300 |
| Motor Speed Est | 226 |
| Motor Speed Ref | 301 |
| Motor Stall Cnfg | 374 |
| Motor Stall Time | 373 |
| Motor Torque Ref | 303 |
| MotorFluxCurr FB | 312 |

| Param Name Text | Parameter # |
|------------------|-------------|
| Mtr Current Lim | 356 |
| Mtr Fdbk Sel Alt | 223 |
| Mtr Fdbk Sel Pri | 222 |
| Mtr I2T Calibrat | 339 |
| Mtr I2T Count | 341 |
| Mtr I2T Curr Min | 337 |
| Mtr I2T Spd Min | 338 |
| Mtr I2T Trp ThrH | 340 |
| Mtr NP Pwr Units | 6 |
| Mtr OL Pend Cnfg | 372 |
| Mtr OL Trip Cnfg | 371 |
| Mtr Trq Curr Ref | 305 |
| Mtr Vds Base | 434 |
| Mtr Vqs Base | 435 |
| Mtring Power Lim | 127 |
| MtrPosit Simulat | 229 |
| MtrSpd Simulated | 228 |
| MulDiv 1 Div | 1055 |
| MulDiv 1 Input | 1053 |
| MulDiv 1 Mul | 1054 |
| MulDiv 1 Result | 1056 |
| MulDiv 2 Div | 1059 |
| MulDiv 2 Input | 1057 |
| MulDiv 2 Mul | 1058 |
| MulDiv 2 Result | 1060 |
| NetLoss DPI Cnfg | 392 |
| Normal Stop Mode | 168 |
| Notch Filt Freq | 118 |
| NotchAttenuation | 117 |
| OL ClsLp CurrLim | 344 |
| OL OpnLp CurrLim | 343 |
| Opt 0 Regis Ltch | 257 |
| Opt 1 Regis Ltch | 258 |
| Opt0/1 RegisCnfg | 254 |
| Opt0/1 RegisCtrl | 255 |
| Opt0/1 RegisStat | 256 |
| Output Curr Disp | 297 |
| Output Current | 308 |
| Output Freq | 310 |
| Output Power | 311 |
| Output Voltage | 307 |
| ParamAccessLevel | 196 |
| PeakDetect1 Out | 215 |
| PeakDetect2 Out | 219 |
| PeakDtct Ctrl In | 210 |
| PeakDtct Status | 211 |
| PeakDtct1 Preset | 214 |
| PeakDtct2 Preset | 218 |
| PI Error | 183 |
| PI Feedback | 182 |
| PI High Limit | 191 |
| PI Integ HLim | 188 |
| PI Integ LLim | 189 |
| PI Integ Output | 190 |

| Param Name Text | Parameter # |
|------------------|-------------|
| PI Integ Time | 187 |
| PI Lower Limit | 192 |
| PI Lpass Filt BW | 184 |
| PI Output | 180 |
| PI Preload | 185 |
| PI Prop Gain | 186 |
| PI Reference | 181 |
| PI TP Data | 179 |
| PI TP Sel | 178 |
| PkDtct1 In DInt | 212 |
| PkDtct1 In Real | 213 |
| PkDtct2 In DInt | 216 |
| PkDtct2 In Real | 217 |
| PLL Bandwidth | 722 |
| PLL Control | 720 |
| PLL EPR Input | 725 |
| PLL EPR Output | 726 |
| PLL Ext Spd Ref | 728 |
| PLL Ext SpdScale | 729 |
| PLL LPFilter BW | 730 |
| PLL FiltPositOut | 733 |
| PLL Posit Out | 731 |
| PLL Posit OutAdv | 732 |
| PLL Position Ref | 721 |
| PLL Rev Input | 723 |
| PLL Rev Output | 724 |
| PLL Speed Out | 734 |
| PLL SpeedOut Adv | 735 |
| PLL TP DataDInt | 718 |
| PLL TP DataReal | 719 |
| PLL TP Select | 717 |
| PLL VirtEncdrRPM | 727 |
| PM AbsEncd Offst | 504 |
| PM D Inductance | 521 |
| PM Mtr CEMF Coef | 523 |
| PM Mtr CEMF Comp | 427 |
| PM Q Inductance | 520 |
| PM Stator Resist | 522 |
| PM Test Freq Ref | 508 |
| PM Test FreqRamp | 507 |
| PM Test I Ref | 509 |
| PM Test Idc Ramp | 506 |
| PM TestWait Time | 505 |
| PMag Mode Config | 512 |
| PMag Tune Config | 517 |
| Port Mask Act | 714 |
| Posit ActI Load | 765 |
| Posit Dtct1 In | 784 |
| Posit Dtct2 In | 785 |
| Posit FB EGR Div | 767 |
| Posit FB EGR Mul | 766 |
| Posit Gear Ratio | 796 |
| Posit Load Fdbk | 764 |
| Posit Offset 1 | 753 |

| Param Name Text | Parameter # |
|------------------|-------------|
| Posit Offset 2 | 754 |
| Posit Offset Spd | 755 |
| Posit Spd Output | 318 |
| Posit TP Select | 737 |
| PositDtct1 Stpt | 780 |
| PositDtct2 Stpt | 781 |
| Position Actual | 763 |
| Position Cmmnd | 747 |
| Position Control | 740 |
| Position ErrCnfg | 399 |
| Position Error | 769 |
| Position Fdbk | 762 |
| Position Ref Sel | 742 |
| Position Status | 741 |
| PositionFdbk Sel | 777 |
| PositRef EGR Div | 746 |
| PositRef EGR Mul | 745 |
| PositRef EGR Out | 744 |
| PositReg Droop | 771 |
| PositReg Integ | 770 |
| PositReg P Gain | 768 |
| PositTP DataDInt | 738 |
| PositTP DataReal | 739 |
| Power EE TP Data | 413 |
| Power EE TP Sel | 412 |
| Power Loss Level | 408 |
| Power Loss Mode | 406 |
| Power Loss Time | 407 |
| PPMP Accel Time | 1139 |
| PPMP Control | 1134 |
| PPMP Decel Time | 1140 |
| PPMP Fwd Spd Lim | 1137 |
| PPMP Over Ride | 1138 |
| PPMP Pos Command | 1130 |
| PPMP Pos Div | 1132 |
| PPMP Pos Mul | 1131 |
| PPMP Pos Output | 1143 |
| PPMP Pos To Go | 1144 |
| PPMP Rev Spd Lim | 1136 |
| PPMP Scaled Cmd | 1133 |
| PPMP SCurve Time | 1141 |
| PPMP Spd Output | 1142 |
| PPMP Status | 1135 |
| PPMP TP DataDInt | 1146 |
| PPMP TP DataReal | 1147 |
| PPMP TP Select | 1145 |
| PreCharge Delay | 472 |
| PreChrg Control | 411 |
| PreChrg Err Cnfg | 381 |
| PreChrg TimeOut | 410 |
| Preset Speed 1 | 14 |
| Preset Speed 2 | 15 |
| Preset Speed 3 | 16 |
| Preset Speed 4 | 17 |

| Param Name Text | Parameter # |
|------------------|-------------|
| Preset Speed 5 | 18 |
| Preset Speed 6 | 19 |
| Preset Speed 7 | 20 |
| Pt-Pt Accel Time | 759 |
| Pt-Pt Decel Time | 760 |
| Pt-Pt Filt BW | 761 |
| Pt-Pt Posit Ref | 758 |
| PWM Frequency | 402 |
| Pwr Strct Mode | 420 |
| Ramped Spd Ref | 43 |
| RatCalc BldUpRec | 1084 |
| RatCalc Build Up | 1083 |
| RatCalc Filter | 1082 |
| RatCalc Inertia | 1085 |
| RatCalc MinSpeed | 1079 |
| RatCalc Mx BldUp | 1078 |
| RatCalc RateLim | 1080 |
| RatCalc ResetVal | 1077 |
| Rated Amps | 400 |
| Rated Slip Freq | 486 |
| Rated Volts | 401 |
| RatioCalc Status | 1076 |
| RatioCalcControl | 1075 |
| Real2DInt In | 1050 |
| Real2DInt Result | 1052 |
| Real2DInt Scale | 1051 |
| Regen Power Lim | 128 |
| RegisLtch0 Value | 235 |
| RegisLtch0/1Cnfg | 236 |
| RegisLtch0/1Ctrl | 237 |
| RegisLtch0/1Stat | 238 |
| RegisLtch1 Value | 239 |
| Reserved | 0 |
| Reslvr0 CableBal | 276 |
| Reslvr0 Carrier | 273 |
| Reslvr0 In Volts | 274 |
| Reslvr0 SpdRatio | 272 |
| Reslvr0 TP Data | 271 |
| Reslvr0 TP Sel | 270 |
| Reslvr0 Type Sel | 277 |
| Resolver0 Cnfg | 268 |
| Resolver0 Status | 269 |
| Rev Speed Limit | 75 |
| Rly Out3 Bit | 857 |
| Rly Out3 Data | 856 |
| Rly Out3 OffTime | 859 |
| Rly Out3 On Time | 858 |
| Rly Out3 Sel | 855 |
| Rotor Resistance | 502 |
| Rslvr0 XfrmRatio | 275 |
| RsTempCoefAdjust | 590 |
| RsTmpCoefAdjstEn | 591 |
| Run Boost | 528 |
| Rx Buf Data Type | 933 |

| Param Name Text | Parameter # |
|-------------------|-------------|
| Rx Dir Data Type | 928 |
| S Curve Time | 34 |
| Save To UserSet | 199 |
| Saved Events | 436 |
| Scaled Spd Fdbk | 72 |
| Scaled Spd Ref | 46 |
| Sel Switch Ctrl | 1022 |
| Sel Swtch In00 | 1029 |
| Sel Swtch In01 | 1030 |
| Sel Swtch In02 | 1031 |
| Sel Swtch In03 | 1032 |
| Sel Swtch In04 | 1033 |
| Sel Swtch In05 | 1034 |
| Sel Swtch In06 | 1035 |
| Sel Swtch In07 | 1036 |
| Sel Swtch In08 | 1037 |
| Sel Swtch In09 | 1038 |
| Sel Swtch In10 | 1039 |
| Sel Swtch In11 | 1040 |
| Sel Swtch In12 | 1041 |
| Sel Swtch In13 | 1042 |
| Sel Swtch In14 | 1043 |
| Sel Swtch In15 | 1044 |
| Selected Spd Ref | 40 |
| Selected SpdRefA | 49 |
| Selected SpdRefB | 50 |
| Selected Trq Ref | 319 |
| SelSwitCh DIntOut | 1046 |
| SelSwitCh RealOut | 1045 |
| SrLssAngleStblty | 537 |
| SrLss VoltStblty | 538 |
| SrLss StbltyFilt | 539 |
| Servo Lock Gain | 85 |
| Set Speed Lim | 171 |
| Setpt 1 Data | 172 |
| Setpt 1 Limit | 174 |
| Setpt 2 Data | 175 |
| Setpt 2 Limit | 177 |
| Setpt1 TripPoint | 173 |
| Setpt2 TripPoint | 176 |
| -Sft OvrTrvlCnfg | 396 |
| Skip Speed 1 | 136 |
| Skip Speed 2 | 137 |
| Skip Speed 3 | 138 |
| Skip Speed Band | 139 |
| SL BOF Err Accum | 896 |
| SL BOF Err Limit | 899 |
| SL BOF Error | 897 |
| SL Buf Data Rx00 | 934 |
| SL Buf Data Rx01 | 935 |
| SL Buf Data Rx02 | 936 |
| SL Buf Data Rx03 | 937 |
| SL Buf Data Rx04 | 938 |
| SL Buf Data Rx05 | 939 |

| Param Name Text | Parameter # |
|------------------|-------------|
| SL Buf Data Rx06 | 940 |
| SL Buf Data Rx07 | 941 |
| SL Buf Data Rx08 | 942 |
| SL Buf Data Rx09 | 943 |
| SL Buf Data Rx10 | 944 |
| SL Buf Data Rx11 | 945 |
| SL Buf Data Rx12 | 946 |
| SL Buf Data Rx13 | 947 |
| SL Buf Data Rx14 | 948 |
| SL Buf Data Rx15 | 949 |
| SL Buf Data Rx16 | 950 |
| SL Buf Data Rx17 | 951 |
| SL Buf Data Rx18 | 952 |
| SL Buf Data Rx19 | 953 |
| SL Buf Data Rx20 | 954 |
| SL Buf Data Rx21 | 955 |
| SL Buf Data Rx22 | 956 |
| SL Buf Data Rx23 | 957 |
| SL Buf Data Rx24 | 958 |
| SL Buf Data Rx25 | 959 |
| SL Buf Data Rx26 | 960 |
| SL Buf Data Rx27 | 961 |
| SL Buf Data Rx28 | 962 |
| SL Buf Data Rx29 | 963 |
| SL Buf Data Tx00 | 970 |
| SL Buf Data Tx01 | 971 |
| SL Buf Data Tx02 | 972 |
| SL Buf Data Tx03 | 973 |
| SL Buf Data Tx04 | 974 |
| SL Buf Data Tx05 | 975 |
| SL Buf Data Tx06 | 976 |
| SL Buf Data Tx07 | 977 |
| SL Buf Data Tx08 | 978 |
| SL Buf Data Tx09 | 979 |
| SL Buf Data Tx10 | 980 |
| SL Buf Data Tx11 | 981 |
| SL Buf Data Tx12 | 982 |
| SL Buf Data Tx13 | 983 |
| SL Buf Data Tx14 | 984 |
| SL Buf Data Tx15 | 985 |
| SL Buf Data Tx16 | 986 |
| SL Buf Data Tx17 | 987 |
| SL Buf Data Tx18 | 988 |
| SL Buf Data Tx19 | 989 |
| SL Buf Data Tx20 | 990 |
| SL Buf Data Tx21 | 991 |
| SL Buf Data Tx22 | 992 |
| SL Buf Data Tx23 | 993 |
| SL Buf Data Tx24 | 994 |
| SL Buf Data Tx25 | 995 |
| SL Buf Data Tx26 | 996 |
| SL Buf Data Tx27 | 997 |
| SL Buf Data Tx28 | 998 |
| SL Buf Data Tx29 | 999 |

| Param Name Text | Parameter # |
|-------------------|-------------|
| SL Clr Events | 916 |
| SL Comm TP Data | 893 |
| SL Comm TP Sel | 892 |
| SL CommLoss Cnfg | 384 |
| SL CommLoss Data | 383 |
| SL CRC Err Accum | 894 |
| SL CRC Err Limit | 898 |
| SL CRC Error | 895 |
| SL Dir Data Rx00 | 929 |
| SL Dir Data Rx01 | 930 |
| SL Dir Data Rx02 | 931 |
| SL Dir Data Rx03 | 932 |
| SL Dir Data Tx00 | 965 |
| SL Dir Data Tx01 | 966 |
| SL Dir Data Tx02 | 967 |
| SL Dir Data Tx03 | 968 |
| SL Error History | 903 |
| SL Error Status | 902 |
| SL Mult A In | 924 |
| SL Mult B In | 925 |
| SL Mult Base | 923 |
| SL Mult Out | 926 |
| SL Mult State | 927 |
| SL MultErr Cnfg | 390 |
| SL Node Cnfg | 904 |
| SL Rcv Events | 915 |
| SL Real2DInt In | 921 |
| SL Real2DInt Out | 922 |
| SL Rx CommFormat | 905 |
| SL Rx DirectSel0 | 906 |
| SL Rx DirectSel1 | 907 |
| SL Rx DirectSel2 | 908 |
| SL Rx DirectSel3 | 909 |
| SL Rx P0 Regis | 917 |
| SL Rx P1 Regis | 918 |
| SL System Rev | 901 |
| SL System Time | 317 |
| SL Tx CommFormat | 910 |
| SL Tx DirectSel0 | 911 |
| SL Tx DirectSel1 | 912 |
| SL Tx DirectSel2 | 913 |
| SL Tx DirectSel3 | 914 |
| SLAT Dwell Time | 120 |
| SLAT ErrorSetpnt | 119 |
| SlewRateTimeLimit | 533 |
| SlipReg Err Lmt | 587 |
| SlipReg Off lqs | 461 |
| SlipReg On Hystr | 593 |
| Slip Comp Gain | 99 |
| Slip Gain | 98 |
| Slip Gain Max | 445 |
| Slip Gain Min | 446 |
| Slip Preload Val | 552 |
| Slip Ratio | 525 |

| Param Name Text | Parameter # |
|------------------|-------------|
| Slip Reg I Gain | 448 |
| Slip Reg P Gain | 447 |
| Slip RPM @ FLA | 98 |
| Slip RPM Meter | 107 |
| Slip Slew Rate | 553 |
| Spd Err Filt BW | 89 |
| Spd Fdbk Scale | 73 |
| Spd Fdbk TP Data | 247 |
| Spd Fdbk TP RPM | 246 |
| Spd Fdbk TP Sel | 245 |
| Spd Ref Bypass | 37 |
| Spd Ref Bypass2 | 48 |
| Spd Ref TP Data | 79 |
| Spd Ref TP RPM | 78 |
| Spd Ref TP Sel | 77 |
| Spd Ref1 Divide | 11 |
| Spd Ref2 Multi | 13 |
| Spd Reg BW | 90 |
| Spd Reg Damping | 91 |
| Spd Reg Droop | 86 |
| Spd Reg I Gain | 82 |
| Spd Reg Neg Lim | 103 |
| Spd Reg P Gain | 81 |
| Spd Reg PI Out | 302 |
| Spd Reg Pos Lim | 102 |
| Spd Reg TP Data | 109 |
| Spd Reg TP Sel | 108 |
| SpdFdbkSmoothing | 220 |
| SpdRef + SpdTrm1 | 47 |
| SpdRef Filt BW | 36 |
| SpdRef Filt Gain | 35 |
| SpdReg AntiBckup | 84 |
| SpdReg Integ Out | 101 |
| SpdReg P Gain Mx | 92 |
| SpdTrim 3 Scale | 24 |
| SpdTrim2 Filt BW | 26 |
| Speed Comp | 55 |
| Speed Error | 100 |
| Speed Ref 1 | 10 |
| Speed Ref 2 | 12 |
| Speed Ref A Sel | 27 |
| Speed Ref B Sel | 28 |
| Speed Ref Scale | 38 |
| Speed Trim 1 | 21 |
| Speed Trim 2 | 22 |
| Speed Trim 3 | 23 |
| Speed/TorqueMode | 110 |
| SReg FB Filt BW | 94 |
| SReg Out Filt BW | 96 |
| SReg Trq Preset | 87 |
| SRegFB Filt Gain | 93 |
| SRegOut FiltGain | 95 |
| SrLss Angl Comp | 541 |
| SrLss FreqReg Ki | 449 |

| Param Name Text | Parameter # |
|------------------|-------------|
| SrLss FreqReg Kp | 450 |
| SrLss Spd Reg BW | 106 |
| SrLss Spd Reg Ki | 105 |
| SrLss Spd Reg Kp | 104 |
| SrLss StbltyFilt | 539 |
| SrLss Volt Comp | 542 |
| SrLss VoltStblty | 538 |
| SrLss ZeroSpdLim | 169 |
| SrLssAngleStblty | 537 |
| SrvoAxis RotFdbk | 707 |
| SrvoAxisUnwdFdbk | 708 |
| Start/Acc Boost | 527 |
| Start Inhibits | 156 |
| Start Mask | 671 |
| Start Owner | 678 |
| Start/Acc Boost | 527 |
| Startup State | 452 |
| Stator Frequency | 526 |
| StatorInductance | 490 |
| StatorResistance | 491 |
| Steg&Heidn TPDta | 262 |
| Steg&Heidn TPSel | 261 |
| Stegmann0 Cnfg | 259 |
| Stegmann0 Status | 260 |
| Stop Dwell Time | 154 |
| Stop Oper TP Sel | 163 |
| Stop Owner | 677 |
| StopOper TP Data | 164 |
| STrim2 Filt Gain | 25 |
| Swch DInt 1 NC | 1026 |
| Swch DInt 1 NO | 1027 |
| Swch DInt 1 Out | 1028 |
| Swch Real 1 NC | 1023 |
| Swch Real 1 NO | 1024 |
| Swch Real 1 Out | 1025 |
| SynchLink Rev | 900 |
| SynchLink Status | 316 |
| TachSwitch Level | 224 |
| Test Current Ref | 431 |
| Test Freq Rate | 433 |
| Test Freq Ref | 432 |
| Test Mode Config | 514 |
| Time Axis Output | 203 |
| Time Axis Rate | 202 |
| To DL DataType | 625 |
| To DriveLogix00 | 626 |
| To DriveLogix01 | 627 |
| To DriveLogix02 | 628 |
| To DriveLogix03 | 629 |
| To DriveLogix04 | 630 |
| To DriveLogix05 | 631 |
| To DriveLogix06 | 632 |
| To DriveLogix07 | 633 |
| To DriveLogix08 | 634 |

| Param Name Text | Parameter # |
|------------------|-------------|
| To DriveLogix09 | 635 |
| To DriveLogix10 | 636 |
| To DriveLogix11 | 637 |
| To DriveLogix12 | 638 |
| To DriveLogix13 | 639 |
| To DriveLogix14 | 640 |
| To DriveLogix15 | 641 |
| To DriveLogix16 | 642 |
| To DriveLogix17 | 643 |
| To DriveLogix18 | 644 |
| To DriveLogix19 | 645 |
| To DriveLogix20 | 646 |
| Torque En Dly | 501 |
| Torque Neg Limit | 126 |
| Torque Pos Limit | 125 |
| Torque Ref1 | 111 |
| Torque Ref1 Div | 112 |
| Torque Ref2 | 113 |
| Torque Ref2 Mult | 114 |
| Torque Step | 116 |
| Torque Trim | 115 |
| Total Inertia | 9 |
| Trend Control | 556 |
| Trend In1 DInt | 570 |
| Trend In1 Real | 571 |
| Trend In2 DInt | 574 |
| Trend In2 Real | 575 |
| Trend In3 DInt | 578 |
| Trend In3 Real | 579 |
| Trend In4 DInt | 582 |
| Trend In4 Real | 583 |
| Trend Mark DInt | 567 |
| Trend Mark Real | 568 |
| Trend Out1 DInt | 572 |
| Trend Out1 Real | 573 |
| Trend Out2 DInt | 576 |
| Trend Out2 Real | 577 |
| Trend Out3 DInt | 580 |
| Trend Out3 Real | 581 |
| Trend Out4 DInt | 584 |
| Trend Out4 Real | 585 |
| Trend PreSamples | 566 |
| Trend Rate | 559 |
| Trend State | 558 |
| Trend Status | 557 |
| Trend Trig Bit | 565 |
| Trend Trig Data | 564 |
| Trend TrigA DInt | 560 |
| Trend TrigA Real | 561 |
| Trend TrigB DInt | 562 |
| Trend TrigB Real | 563 |
| TrendBuffPointer | 569 |
| Trq CurFdbk (Iq) | 499 |
| Trq NegLim Actl | 124 |

| Param Name Text | Parameter # |
|------------------|-------------|
| Trq PosLim Actl | 123 |
| Trq Ref TP Data | 131 |
| Trq Ref TP Sel | 130 |
| Tune Test Status | 165 |
| Tx Buf Data Type | 969 |
| Tx Dir Data Type | 964 |
| UserData Dint 01 | 1002 |
| UserData Dint 02 | 1003 |
| UserData Dint 03 | 1004 |
| UserData Dint 04 | 1005 |
| UserData Dint 05 | 1006 |
| UserData Dint 06 | 1007 |
| UserData Dint 07 | 1008 |
| UserData Dint 08 | 1009 |
| UserData Dint 09 | 1010 |
| UserData Dint 10 | 1011 |
| UserData Real 01 | 1012 |
| UserData Real 02 | 1013 |
| UserData Real 03 | 1014 |
| UserData Real 04 | 1015 |
| UserData Real 05 | 1016 |
| UserData Real 06 | 1017 |
| UserData Real 07 | 1018 |
| UserData Real 08 | 1019 |
| UserData Real 09 | 1020 |
| UserData Real 10 | 1021 |
| UserFunct Actual | 1001 |
| UserFunct Enable | 1000 |
| V/Hz Mode Config | 513 |
| V/Hz Status | 540 |
| Vds Command | 498 |
| Vds Fdbk Filt | 441 |
| Vds Max | 438 |
| Vds Min | 440 |
| VirtEncPositFast | 1160 |
| Virt Encdr Dlyed | 63 |
| Virt Encdr Posit | 62 |
| Virt Encoder EPR | 61 |
| Virtual Edge/Rev | 225 |
| Voltage Class | 403 |
| VoltFdbkLossCnfg | 394 |
| VPL Build Number | 315 |
| VPL Firmware Rev | 314 |
| VPL Mem Address | 479 |
| VPL Mem Data Bit | 482 |
| VPL Mem Data Flt | 481 |
| VPL Mem Data Int | 480 |
| VPL Mem Link Flt | 484 |
| VPL Mem Link Int | 483 |
| VPL Mem Password | 478 |
| Vqs Command | 497 |
| Vqs Fdbk Filt | 442 |
| Vqs Max | 437 |
| Vqs Min | 439 |

| Param Name Text | Parameter # |
|------------------|-------------|
| VqsReg Err Lmt | 588 |
| VqsReg Off Freq | 462 |
| VqsReg On Hyst | 592 |
| Vuv Fdbk Offset | 549 |
| Vvw Fdbk Offset | 550 |
| Write Mask | 669 |
| Write Mask Act | 712 |
| X Notch Attenu | 778 |
| X Notch FiltFreq | 779 |
| X Offst SpdFilt | 756 |
| XReg Integ HiLim | 773 |
| XReg Integ LoLim | 772 |
| XReg Integ Out | 774 |
| XReg Spd HiLim | 776 |
| XReg Spd LoLim | 775 |
| Xsync Gen Period | 787 |
| Xsync In 1 | 788 |
| Xsync In 2 | 790 |
| Xsync In 3 | 793 |
| Xsync Out 1 | 789 |
| Xsync Out 2 | 791 |
| Xsync Out 2 Dly | 792 |
| Xsync Out 3 | 794 |
| Xsync Out 3 Dly | 795 |
| Xsync Status | 786 |
| Zero Speed Lim | 160 |

Notes:

Troubleshooting

Chapter Objectives

This chapter provides information to guide you in troubleshooting the PowerFlex 700S. A list and description of drive faults (with possible solutions, when applicable) and alarms is included.

| For Information on... | See page... |
|------------------------------------------|---------------------|
| Faults and Alarms | 4-4 |
| Drive Status | 4-1 |
| Manually Clearing Faults | 4-4 |
| Fault/Alarm Descriptions | 4-5 |

Drive Status

The condition or state of your drive is constantly monitored. Any changes will be indicated through the front panel LEDs and/or the HIM (if present).

If the DriveLogix option is not present the associated indicators will not be present. The RUN LED and the controller LEDs are only operational when the drive is energized. These LEDs are only visible when the drive door is open or when viewed from the HIM or an application program (e.g., DriveExplorer™) in parameter 554 [LED Status]. This feature is only available with DriveLogix version 15.03 or later.



ATTENTION: The RUN LED and the controller LEDs are only operational when the drive is energized and only visible with the drive door open. Servicing energized equipment can be hazardous. Severe injury or death can result from electrical shock, burn or unintended actuation of controlled equipment. Follow Safety related practices of NFPA 70E, *ELECTRICAL SAFETY FOR EMPLOYEE WORKPLACES*. DO NOT work alone on energized equipment!

LED Indications

Figure 4.1 Drive Status Indicators



Table 4.A Drive Status Indicator Descriptions

| | | # | Name | Color | State | Description |
|-------|------------------|-----|--------------|-------------------------------------------------------|----------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------|
| DRIVE | Power Structure | ① | PWR (Power) | Green | Steady | Illuminates when power is applied to the drive. |
| | | ② | STS (Status) | Green | Flashing | Drive ready, but not running & no faults are present. |
| | | | | | Steady | Drive running, no faults are present. |
| | | | | Yellow | Flashing | When running, a type 2 (non-configurable) alarm condition exists, drive continues to run. When stopped, a start inhibit exists and the drive cannot be started. |
| | | | | | Steady | A type 1 (user configurable) alarm condition exists, but drive continues to run. |
| | | | | Red | Flashing | A fault has occurred. |
| | | | | | Steady | A non-resettable fault has occurred. |
| | | | | Red / Yellow Alternately | Flashing | The drive is in flash recovery mode. The only operation permitted is flash upgrade. |
| | Control Assembly | ③ | PORT | Refer to the <i>Communication Adapter User Manual</i> | | Status of DPI port internal communications (if present). |
| | | | MOD | | | Status of communications module (when installed). |
| | | | NET A | | | Status of network (if connected). |
| | | | NET B | | | Status of secondary network (if connected). |
| | Control | (1) | SYNCHLINK | Green | Steady | The module is configured as the time keeper. or The module is configured as a follower and synchronization is complete. |
| | | | | Green | Flashing | The follower(s) are not synchronized with the time keeper. |
| | | | | Red | Flashing | The module is configured as a time master on SynchLink and has received time information from another time master on SynchLink. |
| | | | ENABLE | Green | On | The drive's enable input is high. |
| | | | | Green | Off | The drive's enable input is low. |

(1) SynchLink LEDs are located on the SynchLink daughtercard on the main circuit board in the control cassette.

Precharge Board LED Indications

Precharge Board LED indicators are found on Frame 5 & 6 drives. The LEDs are located above the “Line Type” jumper shown in [Figure 1.2](#).

| Name | Color | State | Description |
|-------|--------|----------|-------------------------------------------------------------------------|
| Power | Green | Steady | Indicates when precharge board power supply is operational |
| Alarm | Yellow | Flashing | Number in “[]” indicates flashes and associated alarm ⁽¹⁾ : |
| | | [1] | Low line voltage (<90%). |
| | | [2] | Very low line voltage (<50%). |
| | | [3] | Low phase (one phase <80% of line voltage). |
| | | [4] | Frequency out of range or asymmetry (line sync failed). |
| | | [5] | Low DC bus voltage (triggers ride-through operation). |
| | | [6] | Input frequency momentarily out of range (40-65 Hz). |
| Fault | Red | Flashing | Number in “[]” indicates flashes and associated fault ⁽²⁾ : |
| | | [2] | DC bus short (Udc <2% after 20 ms). |
| | | [4] | Line sync failed or low line (Uac <50% Unom). |

⁽¹⁾ An alarm condition automatically resets when the condition no longer exists

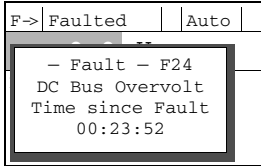
⁽²⁾ A fault indicates a malfunction that must be corrected and can only be reset after cycling power.

Table 4.B Common Causes of a Run Inhibit

| Examine Parameter 156 [Run Inhibit Status] | | |
|--------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------|
| Bit | Description | Action |
| 1 | No power is present at the Enable Terminal TB2- 16 | Apply the enable |
| 2, 3, 4 | A stop command is being issued | Close all stop inputs |
| 5 | Power loss event is in progress, indicating a loss of the AC input voltage | Restore AC power |
| 6 | Data supplied by the power structure EEPROM is invalid or corrupt | Cycle the power. If problem persists, replace the power structure. |
| 7 | Flash Update in Progress | Complete Flash Procedures |
| 8 | Drive is expecting a Start Edge and is receiving a continuous signal. | Open all start buttons and remove all start commands |
| 9 | Drive is expecting a Jog Edge and is receiving a continuous signal. | Open all jog buttons and remove all jog commands |
| 10 | A conflict exists between the Encoder PPR programming (Par 232 or 242) and the encoder configuration for edge counts (Par 233, bits 4 & 5). | Verify encoder data and reprogram |
| 11 | The drive cannot precharge because a precharge input is programmed and no signal is present. | Reprogram the input or close the precharge control contact. |
| 12 | Digital Configuration | Start input configured but stop not configured |
| | | Run input configured but control options do not match |
| | | Start input configured but control options do not match |
| | | Multiple inputs configured as Start or Run |
| | | Multiple inputs configured as Jog1 |
| | | Multiple inputs configured as Jog2 |
| 14 | | Multiple inputs configured as Fwd/Rev |
| | | Invalid Feedback Device for Permanent Magnet Motor Control |



HIM Indication

The HIM also provides visual notification of a fault.

| Condition | Display |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| Drive is indicating a fault. The LCD HIM immediately reports the fault condition by displaying the following: <ul style="list-style-type: none"> • “Faulted” appears in the status line • Fault number • Fault name • Time that has passed since the fault occurred Press Esc to regain control of the HIM |  |

Manually Clearing Faults

This section will contain a table that illustrates the HIM keystrokes necessary to clear faults.

| Step | Key(s) |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------|
| 1. Press Esc to acknowledge the fault. The fault information will be removed so that you can use the HIM. |  |
| 2. Address the condition that caused the fault. The cause must be corrected before the fault can be cleared. | |
| 3. After corrective action has been taken, clear the fault by one of these methods. <ul style="list-style-type: none"> • Press Stop • Cycle drive power • Select “Clear Faults” from Diagnostic - Faults menu |  |

Faults and Alarms

A fault is a condition that stops the drive. An alarm is a condition that, if left untreated, may stop the drive. There are three configuration types for indicating a fault and/or alarm.

Table 4.C Fault Type Descriptions

| Type | Fault Description |
|------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| ① | Non-Configurable Fault The cause of the fault must be corrected before the fault can be cleared. |
| ② | User Configurable Programming and commissioning personnel can configure the drive's response to these exception events. Responses include: <ul style="list-style-type: none"> • Ignore • Alarm • Fault Coast Stop • Fault Ramp Stop • Fault Current Limit Stop |
| ③ | Non-Configurable Alarm Can only be configured as a alarm. |

Fault/Alarm Descriptions

Table 4.D Fault/Alarm Descriptions and Configuration Parameters

| No. | Name | Type ⁽¹⁾ | Description | Action |
|-----|------------------|---------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1 | Abs Ovespd Det | ① | Motor speed has exceeded the limits set by Par 75 [Rev Speed Limit], Par 76 [Fwd Speed Limit] and Par 335 [Abs OverSpd Lim] | <p>Check to see if the encoder feedback polarity is correct.</p> <p>Check to see if the drive is in torque mode, selected in Par 110 [Speed/TorqueMode] value 2 "Torque Ref". If the drive is in torque mode, verify that there is a load present.</p> <p>Verify min/max settings in Par 75 [Rev Speed Lim] and Par 76 [Fwd Speed Lim]. Check to see if the load is overhauling. If it is overhauling, turn the bus regulator off using Par 414 [Brake/Bus Cnfg] bit 2 "BusRef High".</p> |
| 2 | Vref Decel Fail | ① | The value of Par 301 [Motor Spd Ref] has failed to decrease during a ramp to zero speed stop. This could possibly be due to a speed trim from Par 21 [Speed Trim 1], Par 22 [Speed Trim 2] or Par 23 [Speed Trim 3]. | |
| 3 | Encoder 0 Loss | ② | One of the following has occurred on encoder 0: <ul style="list-style-type: none"> • missing encoder (broken wire) • quadrature error • phase loss | <p>Reconnect encoder or replace encoder.</p> <p>Configured with Par 365 [Fdbk LsCnfg Pri], Par 366 [Fdbk LsCnfg Alt], and Par 367 [Fdbk LsCnfgPosit]</p> |
| 4 | Encoder 1 Loss | ② | One of the following has occurred on encoder 1: <ul style="list-style-type: none"> • missing encoder (broken wire) • quadrature error • phase loss | <p>Reconnect encoder or replace encoder.</p> <p>Configured with Par 365 [Fdbk LsCnfg Pri], Par 366 [Fdbk LsCnfg Alt], and Par 367 [Fdbk LsCnfgPosit]</p> |
| 5 | Opt Port 0 Loss | ② | A fault on port 0 of the Hi-Resolution Encoder Feedback Option Card, MDI Option Card, Heidenhain, or Resolver Feedback Option Card has occurred. <ul style="list-style-type: none"> • Par 260 [Stegmann0 Status] displays the fault status for port 0 of the Hi-Resolution Encoder Feedback Option Card. • Par 264 [Heidenhain0 Stat] displays the fault status for port 0 of the Heidenhain Feedback Option Card. • Par 269 [Resolver0 Status] displays the fault status for port 0 of the Resolver Feedback Option Card. | <p>Reconnect encoder or replace encoder</p> <p>Reconnect option feedback card</p> <p>Configured with Par 365 [Fdbk LsCnfg Pri], Par 366 [Fdbk LsCnfg Alt], and Par 367 [Fdbk LsCnfgPosit]</p> |
| 6 | Opt Port 1 Loss | ② | The Linear sensor portion of the MDI feedback option card has detected a fault condition. <ul style="list-style-type: none"> • Par 286 [Linear1 Status] displays the fault status for linear portion of the MDI feedback Option Card. | <p>Reconnect encoder or replace encoder</p> <p>Reconnect option feedback card</p> <p>Configured with Par 365 [Fdbk LsCnfg Pri], Par 366 [Fdbk LsCnfg Alt], and Par 367 [Fdbk LsCnfgPosit]</p> |
| 7 | Params Defaulted | ① | All parameters are reset to default by user. | |
| 8 | SLink HW Fail | ① | A fault on loading SynchLink firmware into FPGA on Main Control Board at power up. | Replace Main Control Board |
| 9 | SLink Comm Fail | ② | A SynchLink communication fault has occurred. <ul style="list-style-type: none"> • Par 902 [SL Error Status] displays SynchLink errors. | <p>Verify the SynchLink configuration in</p> <ul style="list-style-type: none"> • Par 904 [SL Node Cnfg] • Par 905 [SL Rx CommFormat], and • Par 910 [SL Tx CommFormat] <p>Reconnect SynchLink communication fibers</p> <p>Configured with Par 384 [SL CommLoss Cnfg]</p> |
| 10 | Drive Power Loss | ① | <ul style="list-style-type: none"> • DC Bus voltage has fallen below the minimum value • Par 306 [DC Bus Voltage] displays bus voltage • Par 330 [Fault TP Data] displays the minimum value when Par 329 [Fault TP Sel] is set to five • The drive must first complete precharge before this check is made | Verify AC line power |

| No. | Name | Type ⁽¹⁾ | Description | Action |
|-----|------------------|---------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 11 | Motor OLoad Trip | ② | <p>A motor overload trip has occurred. Par 308 [Output Current] is squared, scaled and integrated over time. When this integrated value exceeds 1.0, this Exception Event occurs.</p> <p>The integrator's output can be viewed in Par 330 [Fault TP Data] when Par 329 [Fault TP Sel] is set to 13 "Mtr OL Outpt". The overload integration rate is affected by Par 336 [Motor OL Factor], Par 337 [Mtr I2T Curr Min], Par 338 [Mtr I2T Spd Min] and Par 339 [Mtr I2T Calibrat].</p> | <p>Reduce mechanical load</p> <p>Enter correct motor nameplate full load amps Par 2 [Motor NP FLA]</p> <p>Configured with Par 371 [Mtr OL Trip Cnfg]</p> |
| 12 | Motor OLoad Pend | ② | <p>A motor overload is pending. Par 308 [Output Current] is squared, scaled and integrated over time. When this integrated value exceeds 0.5, this exception event occurs.</p> <p>The integrator's output can be viewed in Par 330 [Fault TP Data] when Par 329 [Fault TP Sel] is set to 13 "Mtr OL Outpt". The overload integration rate is affected by Par 336 [Motor OL Factor], Par 337 [Mtr I2T Curr Min], Par 338 [Mtr I2T Spd Min] and Par 339 [Mtr I2T Calibrat].</p> | <p>Reduce the mechanical load</p> <p>Enter correct motor nameplate full load amps Par 2 [Motor NP FLA]</p> <p>Configured with Par 372 [Mtr OL Pend Cnfg]</p> |
| 13 | Motor Stalled | ② | <p>The motor has stalled. These three conditions have occurred at the same time for the amount of time specified in Par 373 [Motor Stall Time]:</p> <ol style="list-style-type: none"> 1.) Drive is not stopped (Par 150 [Logic State Mach] not equal to zero) 2.) Drive is on limit (Par 304 [Limit Status] not equal to zero) 3.) Drive is at zero speed (Par 155 [Logic Status] / bit 13 "At Zero Spd" is set). | <p>Increase torque limit</p> <p>Reduce mechanical load</p> <p>Configured with Par 374 [Motor Stall Cnfg]</p> |
| 14 | Inv OTemp Pend | ② | <p>Par 313 [Heatsink Temp] is within 10°C of maximum.</p> <p>View the maximum heat sink temperature in Par 348 [Drive OL TP Data] when Par 347 [Drive OL TP Sel] is set to 30 - "fMaxHsDegc".</p> | <p>Reduce the mechanical load</p> <p>Lower the ambient temperature</p> <p>Configured with Par 375 [Inv OT Pend Cnfg]</p> |
| 15 | Inv OTemp Trip | ① | <p>Par 313 [Heatsink Temp] is above the maximum limit or temperature sensor has failed (shorted or open).</p> <p>See Par 346 [Drive OL Status] / bit 0 "NTC Shorted" and bit 1 "NTC Open".</p> | <p>Reduce the mechanical load</p> <p>Lower the ambient temperature</p> |
| 16 | Inv OLoad Pend | ② | <p>The drive's operating point is approaching the intermittent current rating limitation. If output current remains at or above present levels, an inverter overload condition will occur.</p> | <p>Reduce the load on the drive</p> <p>Configured with Par 376 [Inv OL Pend Cnfg]</p> |
| 17 | Inv OLoad Trip | ② | <p>The drive's operating point has exceeded the intermittent current rating and a foldback to the continuous rating in Par 400 [Rated Amps] has occurred.</p> | <p>Reduce the mechanical load</p> <p>Configured with Par 377 [Inv OL Trip Cnfg]</p> |
| 18 | Ext Fault Input | ② | <p>A digital input has detected an external fault.</p> <p>Enter a value of 3 "Ext Fault" or 38 "ExtFault Inv" in one of the following parameters to configure an input to detect an external fault:</p> <p>Par 825 [Digin 1 Sel] Par 826 [Digin 2 Sel] Par 827 [Digin 3 Sel] Par 828 [Dig In4 Sel] Par 829 [Dig In5 Sel] Par 830 [Dig In6 Sel]</p> | <p>Configured with Par 379 [Ext Flt/AIm Cnfg]</p> |
| 19 | DSP Memory Error | ① | <p>Flash memory does not match the SRAM memory</p> | <p>Cycle the drive power</p> <p>If the fault remains, replace the Main Control Board</p> |
| 20 | DSP Device Error | ① | <p>A DSP (Velocity Position Loop) interrupt task has not been completed in the allotted time.</p> | <p>Cycle the drive power</p> <p>If the fault remains, replace the Main Control Board</p> |

| No. | Name | Type ⁽¹⁾ | Description | Action |
|-----|------------------|---------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 22 | Over Frequency | ① | Encoderless algorithm fails to converge on correct speed. Two possible causes: 1.) Velocity regulator is attempting to run below motor's slip speed. 2.) Frequency regulator "pulls out" and commanded motor frequency slows to maximum frequency limit. | |
| 23 | MC Commissn Fail | ① | The drive has failed to complete either the Motor Autotuning procedure or the Power Circuits Diagnostics test. Par 463 [MC Diag Error 1], Par 464 [MC Diag Error 2], and Par 465 [MC Diag Error 3] display Motor Autotuning and Power Circuit Diagnostic faults. Par 465 [MC Diag Error 3] - Drive current, inductance, voltage and speed are not within motor nameplate specifications. This fault occur most frequently on low horsepower motors. | Verify that motor nameplate data is entered correctly into the drive. Verify the motor is wired for the correction voltage entering into the drive. Verify the encoder (if used) and velocity feedback is correct. Change tuning mode in to Par 515 [FVC Tune Config] to 9 "NoRotate Tune". |
| 24 | DC Bus Overvolt | ① | Refer to "Protection" in Appendix A - Specifications on page A-1 for DC Bus Overvoltage Trip levels. | Verify the AC Line. Verify that either the brake or bus regulator is enabled (Par 414 [Brake/Bus Cnfg], bit 0 "Brake Enable" or bit 3 "Bus Reg Enable", respectively). Verify that Par 128 [Regen Power Lim] is set properly. If Par 414 [Brake/Bus Cnfg] bit 0 "Brake Enable" is set, verify braking resistor is properly sized. |
| 25 | Inv Trans Desat | ① | The IGBT detects a transistor failure (Desat). | |
| 26 | Ground Fault | ① | A current to earth exceeds 35% of the peak drive rating. | Check the motor and external wiring to the drive output terminals for a grounded condition. |
| 27 | Inst Overcurrent | ① | Instantaneous motor current exceeds 214% of rating | Reduce mechanical load. Check the motor and external wiring to the motor. |
| 28 | VPL/MC Comm Fail | ① | A communication failure has occurred between the Velocity Position Loop (VPL) processor and the Motor Control (MC) processor on the main control board. Possible causes are: <ul style="list-style-type: none">• VPL is flashing MC firmware into the MC processor when HIM indicates "Loading Config".• MC has failed to complete or pass diagnostic tests.• MC has not detected VPL handshake activity for over 32 ms.• VPL has not detected MC handshake activity for over 32 ms. This is indicated when Fault Test Point 15 or 16 equals 1. This test point is viewed in Par 330 [Fault TP Data] when Par 329 [Fault TP Select] is set to value 15 or 16. | Cycle power Reflash firmware Replace Main Control Board |
| 29 | PWM Signal Short | ① | This fault is detected when ever the actual IGBT gate is different than the commanded IGBT states. This fault is detected by the Motor Control (MC) processor. | |
| 30 | MC Firmware | ① | One of the following Motor Control (MC) firmware errors has occurred: <ul style="list-style-type: none">• MC Task Over Run• Illegal Interrupt• Self Diagnostic Fault• Data Error | Cycle power Reflash firmware Replace Main Control Board |

| No. | Name | Type ⁽¹⁾ | Description | Action |
|-----|------------------|---------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 31 | Precharge Error | ② | The precharge function has failed to complete within 30 seconds (default) of the precharge request. The precharge time out is configurable by Par 410 [PreChrg TimeOut]. A precharge request is initiated when the DC Bus voltage is above the Undervoltage Trip level and the precharge input is high (the requirement for the precharge being high can be bypassed by setting Par 411 [PreChrg Control] bit 01 "PreChrg Enable" off). | Verify the value in Par 410 [PreChrg TimeOut]. Verify the bit value in Par 411 [PreChrg Control] = 1 "Enbl PrChrg". Configured with Par 381 [PreChrg Err Cnfg] |
| 32 | PWM Asynch | ① | The Motor Control Processor is not synchronized with SynchLink. | |
| 33 | +/- 15volt Power | ① | The 12V DC control voltage is outside the tolerance range. The positive voltage power must be within the band from +17.00 to +11.61V DC. The negative voltage power must be within the band from -17.00 to -11.61V DC. | Replace switch mode power supply. For smaller frames, replace drive. |
| 35 | Parameter Chksum | ① | The checksum read from the EEPROM does not match the checksum calculated | Cycle power Replace Main Control Board |
| 38 | Brake OL Trip | ② | The calculated temperature of the dynamic braking resistor is too high. The temperature is calculated by a thermal model. If the resistor is internal, the model uses resistor characteristic stored in the power structure EEPROM memory. If the resistor is external, the model uses values of Par 416 [Brake PulseWatts] and Par 417 [Brake Watts]. | Verify actual temperature of brake: - If hot, wait for brake to cool - If cold, cycle power to the drive If cold, verify Par 416 [Brake PulseWatts] and Par 417 [Brake Watts] are correct. Configured with Par 369 [Brake OL Cnfg] |
| 39 | PowerEE CRC Fail | ① | The Cycling Ring Checksum (CRC) of the data stored in the Power Board EEPROM does not match the stored CRC. | Cycle power In High Horse Power units, check communication bus lines - 10 pin connector in Main Control Board, High Horse Power interface board, and fiber optic cable connections. |
| 40 | SLink Mult Oflow | ② | A SynchLink Multiplier Overflow has occurred. Par 927 [SL Mult State] displays SynchLink multiplier overflow errors. | Configured with Par 390 [SL MultErr Cnfg] |
| 41 | Ridethru Timeout | ① | The drive has been in a bus loss ridethrough condition for more than two seconds (default). The ridethrough timeout is configurable by Par 407 [Power Loss Time]. | Verify the AC Line. Verify the value in Par 407 [Power Loss Time]. |
| 42 | DC Bus Undervolt | ② | Bus voltage has fallen below the level configured by Par 409 [Line Undervolts]. | Verify the AC Line. In frames 1-4, and 9 - 13 verify the precharge resistor is present. (With power off, there should be a resistance between DC+ and BR+). In frames 5 & 6, check the precharge board for errors. See the precharge board LED for fault sequence. Configured with Par 393 [BusUndervoltCnfg] |
| 43 | VoltageFdbk Loss | ② | Loss of Motor or DC Bus Voltage Feedback has occurred because of a communication failure between Motor Control and Voltage Feedback board. | Check the communication line between Motor Control (MC) and Voltage Feedback board. Replace the Voltage Feedback board. Configured with Par 394 [VoltFdbkLossCnfg] |
| 44 | Runtime Data Rst | ③ | Runtime data (hours, energy) has been reset to zero due to a checksum error. | |
| 45 | Enable Health | ① | Safety circuit is active. | Check input signal to the Safety circuit. |
| 46 | Interp Out Synch | ② | Interpolator for position feedback lost synchronization with Velocity Position Loop (VPL). | Configured with Par 378 [Interp Flt Cnfg] |
| 47 | MC CML Task Fail | ③ | Current Minor Loop (CML) task has been delayed or run with incorrect interval. | Cycle power. |
| 48 | No Ctrl Device | ① | The controlling device (HIM or controller) has been disconnected while the drive was running. | |

| No. | Name | Type ⁽¹⁾ | Description | Action |
|-----|------------------|---------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------|
| 49 | DPI Loss Port 1 | ② | The device at DPI port 1 has stopped communicating with the drive. A SCANport device is connected to a drive operating DPI devices at 500k Baud | Verify DPI device is present and functional at port 1. Configured with Par 391 [DPI CommLoss Cfg] |
| 50 | DPI Loss Port 2 | ② | The device at DPI port 2 has stopped communicating with the drive. A SCANport device is connected to a drive operating DPI devices at 500k Baud | Verify DPI device is present and functional at port 2. Configured with Par 391 [DPI CommLoss Cfg] |
| 51 | DPI Loss Port 3 | ② | The device at DPI port 3 has stopped communicating with the drive. A SCANport device is connected to a drive operating DPI devices at 500k Baud | Verify DPI device is present and functional at port 3. Configured with Par 391 [DPI CommLoss Cfg] |
| 52 | DPI Loss Port 4 | ② | The device at DPI port 4 has stopped communicating with the drive. A SCANport device is connected to a drive operating DPI devices at 500k Baud | Verify DPI device is present and functional at port 4. Configured with Par 391 [DPI CommLoss Cfg] |
| 53 | DPI Loss Port 5 | ② | The device at DPI port 5 has stopped communicating with the drive. A SCANport device is connected to a drive operating DPI devices at 500k Baud | Verify DPI device is present and functional at port 5. Configured with Par 391 [DPI CommLoss Cfg] |
| 54 | DPI Loss Port 6 | ② | The device at DPI port 6 has stopped communicating with the drive. A SCANport device is connected to a drive operating DPI devices at 500k Baud | Verify DPI device is present and functional at port 6. Configured with Par 391 [DPI CommLoss Cfg] |
| 55 | Net Loss DPI P1 | ② | A communications fault has occurred between the communication adapter at DPI port 1 and the network. | Verify network connection. Verify status of network. Configured with Par 392 [NetLoss DPI Cnfg] |
| 56 | Net Loss DPI P2 | ② | A communications fault has occurred between the communication adapter at DPI port 2 and the network. | Verify network connection. Verify status of network. Configured with Par 392 [NetLoss DPI Cnfg] |
| 57 | Net Loss DPI P3 | ② | A communications fault has occurred between the communication adapter at DPI port 3 and the network. | Verify network connection. Verify status of network. Configured with Par 392 [NetLoss DPI Cnfg] |
| 58 | Net Loss DPI P4 | ② | A communications fault has occurred between the communication adapter at DPI port 4 and the network. | Verify network connection. Verify status of network. Configured with Par 392 [NetLoss DPI Cnfg] |
| 59 | Net Loss DPI P5 | ② | A communications fault has occurred between the communication adapter at DPI port 5 and the network. | Verify network connection. Verify status of network. Configured with Par 392 [NetLoss DPI Cnfg] |
| 60 | Net Loss DPI P6 | ② | A communications fault has occurred between the communication adapter at DPI port 6 and the network. | Verify network connection. Verify status of network. Configured with Par 392 [NetLoss DPI Cnfg] |
| 61 | Logix Out of Run | ② | The DriveLogix controller is in a Non-Run mode. Non-Run modes include program, remote-program and faulted modes. | Clear fault Configured with Par 386 [Lgx OutOfRunCnfg] |
| 62 | Logix Timeout | ② | The communication connection to the DriveLogix controller has timed out. | Configured with Par 387 [Lgx Timeout Cnfg] |
| 63 | Logix Closed | ② | The DriveLogix controller has closed the Controller to Drive connection. | Verify drive is present in I/O Configured with Par 388 [Lgx Closed Cnfg] |

| No. | Name | Type ⁽¹⁾ | Description | Action |
|-----|------------------|---------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 64 | Logix Link Chng | ② | A required link in the Controller to Drive Communication Format has been modified. | Clear fault Configured with Par 389 [Lgx LinkChngCnfg] |
| 65 | HiHp In PhaseLs | ② | <i>(High Horse Power Only)</i> AC Input Phase Loss - the AC input phase voltage has fallen. | 1. Check for voltage on each AC input phase. 2. Check the status of each external AC input fuse. Configured with Par 370 [HiHp InPhsLs Cfg] |
| 66 | HiHp Bus Com Dly | ① | <i>(High Horse Power Only)</i> Bus Communication Time Delay - the communication bus has delayed feedback, or bad communication quality. | Check the communication bus lines - 10 pin connector on the Main Control Board, High Horse Power Fiber Optic Interface board, and fiber connections. |
| 67 | HiHp Bus Link Ls | ① | <i>(High Horse Power Only)</i> Bus Communication Link Loss - bus communication between the High Power Fiber Optic Interface circuit board and the Voltage Feedback circuit board has stopped. | Check the communication bus lines - 10 pin connector on the Main Control Board, High Horse Power Fiber Optic Interface board, and fiber connections. |
| 68 | HiHp Bus CRC Er | ① | <i>(High Horse Power Only)</i> Bus Communication CRC Error - too many Cycling Ring Checksum (CRC) errors have occurred in the communication bus. A fast power cycle may cause the 700S Main Control Board to attempt to communicate with the ASIC Board before the ASIC Board is energized. | Check the communication bus lines - 10 pin connector on the Main Control Board, High Horse Power Fiber Optic Interface board, and fiber connections. |
| 69 | HiHp Bus WtchDog | ① | <i>(High Horse Power Only)</i> Bus Communication Watchdog Error - no message (packets) came through in the communication bus -a watchdog error was detected. | Check the communication bus lines - 10 pin connector on the Main Control Board, High Horse Power Fiber Optic Interface board, and fiber connections. |
| 70 | HiHp Fan Fdbk Ls | ① | <i>(High Horse Power Only)</i> Fan Feedback Loss - an inverter cooling fan did not send active feedback, or did not work. | 1. Check the communication bus lines - 10 pin connector on the Main Control Board, High Horse Power Fiber Optic Interface board, and fiber connections. 2. Check the inverter cooling fans. |
| 71 | HiHp Drv OvrLoad | ① | <i>(High Horse Power Only)</i> Drive Overload - the drive's operating point has exceeded the intermittent current rating and a foldback to the continuous rating in Par 400 [Rated Amps] has occurred. | Reduce mechanical load. |
| 72 | HiHp PwrBd PrcEr | ① | <i>(High Horse Power Only)</i> Power Board Processor Error - a processor on the High Power Fiber Optic Interface circuit board has detected a self diagnostic problem. | Replace the High Power Fiber Optic Interface circuit board. |
| 73 | HiHp PrChrg Cntc | ① | <i>(High Horse Power Only)</i> Precharge Contactor Fault - the precharge contactor did not send back the active feedback. | If the drive is an AC input model, check the precharge resistor and contactor. If the drive is a DC input model, check a jumper for precharge bypass switch on the High Power Fiber Optic Interface circuit board. |
| 74 | HiHp PwrEE Error | ① | <i>(High Horse Power Only)</i> Power EEPROM Error - the Cycling Ring Checksum (CRC) of the data stored in the High Power Fiber Optic Interface circuit board EEPROM does not match the stored CRC. | Cycle power. Check the communication bus lines - 10 pin connector on the Main Control Board, High Horse Power Fiber Optic Interface board, and fiber connections. |
| 75 | HiHP PwrBd Otemp | ① | <i>(High Horse Power Only)</i> Power Board Over Temperature - the temperature of the High Power Fiber Optic Interface circuit board has exceeded 85° C. | Lower the ambient temperature. |
| 76 | HiHP HardwareVer | ③ | <i>(High Horse Power Star-coupler Frame 12 Only)</i> The left and right side inverter units have different current ratings, or the ASIC board on the power-board is not functioning. | Check the version of each inverter (left and right units), then replace the unit. |
| 77 | HiHP CurrUnblnce | ③ | <i>(High Horse Power Star-coupler Frame 12 Only)</i> The output current between the left and right side inverter units are unbalanced (20% of current feedback rating, e.g. 184A = 920A * 0.2). | Check motor wiring for each unit. |

| No. | Name | Type ⁽¹⁾ | Description | Action |
|-----|------------------------|---------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------|
| 78 | HiHP VoltUnblnce | ③ | (High Horse Power Star-coupler Frame 12 Only) The bus voltage for the left and right side inverter units is unbalanced (6% of normal bus voltage, e.g. 41Vdc = 675Vdc * 0.06). | Check input power and wiring for each unit. |
| 79 | HiHP Bus Data | ③ | (High Horse Power Star-coupler Frame 12 Only) Communication Bus data are mismatched between left side unit and right side unit. | Check communication bus lines - 10 pin connector on Main Control Board, High Horse Power Fiber Optic Interface board and fiber connections. |
| 81 | + Soft Over Trvl | ② | (Motion Only) Position feedback exceeds the maximum positive travel setting, Par 694 [Motn Mx Pos Trvl]. | Configured with Par 395 [+Sft OvrTrvlCnfg] |
| 82 | - Soft Over Trvl | ② | (Motion Only) Position feedback, exceeds the maximum negative travel setting, Par 695 [Motn Mx Neg Trvl]. | Configured with Par 396 [-Sft OvrTrvlCnfg] |
| 83 | + Hard Over Trvl | ② | (Motion Only) Signal for the hardware positive over travel appears on a digital input. | Configured with Par 397 [+Hrd OvrTrvlCnfg] |
| 84 | - Hard Over Trvl | ② | (Motion Only) Signal for the hardware negative over travel appears on a digital input. | Configured with Par 398 [-Hrd OvrTrvlCnfg] |
| 85 | Position Error | ② | (Motion Only) Par 769 [Position Error] exceeded Par 696 [Motn PositErrTol]. | Verify the value in Par 696 [Motn PositErrTol]. Configured with Par 399 [Position ErrCnfg] |
| 86 | Drive Homing | ③ | When the drive is in Drive Homing mode (Par 740 / bit 24 or bit 27 is On), the Drive Homing Alarm triggers and the drive moves to a home position automatically. | Check Par 740 / bit14 "Find Home" or bit 27 "Return Home". |
| 88 | Stahl Optics | ③ | Linear Stahl Encoder detected a fault. Par 291 [Lin1Stahl Status] shows the details of the fault. | Reconnect encoder or replace encoder. Reconnect option feedback card. |
| 93 | +/- 12volt Power Alarm | ③ | The 12V DC control voltage is outside the tolerance range (Alarm). The positive voltage power exceeds +15.50 V DC. The negative voltage power exceeds -15.50V DC. | |
| 94 | Analog In 1 Loss | ① | Analog Input channel 1 is lost. For configuration of Analog Input channel 1, see Par 1093 [Anlg In1LossCnfg]. | Check condition of Analog Input channel 1. Change configuration for parameter 1093 [Anlg In1LossCnfg]. |
| 95 | Analog In 2 Loss | ① | Analog Input channel 2 is lost. For configuration of Analog Input channel 2, see Par 1094 [Anlg In2LossCnfg]. | Check condition of Analog Input channel 2. Change configuration for parameter 1094 [Anlg In2LossCnfg]. |
| 96 | Analog In 3 Loss | ① | Analog Input channel 3 is lost. For configuration of Analog Input channel 3, see Par 1095 [Anlg In3LossCnfg]. | Check condition of Analog Input channel 3. Change configuration for parameter 1095 [Anlg In3LossCnfg]. |
| 129 | Faults Cleared | * | Indicates that all faults have been cleared. | *Informational only. |
| 130 | Fault Q Cleared | * | Indicates that the fault queue has been cleared. | *Informational only. |
| 131 | Alarm Cleared | * | Indicates that all alarms have been cleared. | *Informational only. |
| 132 | Alarm Q Cleared | * | Indicates that the alarm queue has been cleared. | *Informational only. |

⁽¹⁾ Refer to [Table 4.C on page 4-4](#) for Fault Type Descriptions.

Table 4.E Fault Description Cross Reference

| Fault | No. | Fault | No. |
|------------------------|---------------------|----------------------|--------------------|
| +/- 12volt Power Alarm | 93 | HiHp PwrEE Error | 74 |
| +/- 15volt Power | 33 | HiHP VoltUnblnce | 78 |
| + Hard Over Trvl | 83 | Inst Overcurrent | 27 |
| - Hard Over Trvl | 84 | Interp Out Synch | 46 |
| + Soft Over Trvl | 81 | Inv OLoad Pend | 16 |
| - Soft Over Trvl | 82 | Inv OLoad Trip | 17 |
| Abs Ovespd Det | 1 | Inv OTemp Pend | 14 |
| Alarm Cleared | 131 | Inv OTemp Trip | 15 |
| Alarm Q Cleared | 132 | Inv Trans Desat | 25 |
| Analog In 1 Loss | 94 | Logix Closed | 63 |
| Analog In 2 Loss | 95 | Logix Link Chng | 64 |
| Analog In 3 Loss | 96 | Logix Out of Run | 61 |
| Brake OL Trip | 38 | Logix Timeout | 62 |
| DC Bus Overvolt | 24 | MC CML Task Fail | 47 |
| DC Bus Undervolt | 42 | MC Commissn Fail | 23 |
| DPI Loss Port 1 | 49 | MC Firmware | 30 |
| DPI Loss Port 2 | 50 | Motor OLoad Pend | 12 |
| DPI Loss Port 3 | 51 | Motor OLoad Trip | 11 |
| DPI Loss Port 4 | 52 | Motor Stalled | 13 |
| DPI Loss Port 5 | 53 | Net Loss DPI P1 | 55 |
| DPI Loss Port 6 | 54 | Net Loss DPI P2 | 56 |
| Drive Homing | 83 | Net Loss DPI P3 | 57 |
| Drive Power Loss | 10 | Net Loss DPI P4 | 58 |
| DSP Device Error | 20 | Net Loss DPI P5 | 59 |
| DSP Memory Error | 19 | Net Loss DPI P6 | 60 |
| Enable Health | 45 | No Ctrl Device | 48 |
| Encoder 0 Loss | 3 | Opt Port 0 Loss | 5 |
| Encoder 1 Loss | 4 | Opt Port 1 Loss | 6 |
| Ext Fault Input | 18 | Over Frequency Fault | 22 |
| Faults Cleared | 129 | Parameter Chksum | 35 |
| Fault Q Cleared | 130 | Params Defaulted | 7 |
| Ground Fault | 26 | Position Error | 85 |
| HiHp Bus Com Dly | 66 | PowerEE CRC Fail | 39 |
| HiHp Bus CRC Er | 68 | Precharge Error | 31 |
| HiHP Bus Data | 79 | PWM Asynch | 32 |
| HiHp Bus Link Ls | 67 | PWM Signal short | 29 |
| HiHp Bus WtchDog | 69 | Ridethru Timeout | 41 |
| HiHP CurrUnblnce | 77 | Runtime Data Rst | 44 |
| HiHp Drv OvrLoad | 71 | SLink Comm Fail | 9 |
| HiHp Fan Fdbk Ls | 70 | SLink HW Fail | 8 |
| HiHP HardwareVer | 76 | SLink Mult Oflow | 40 |
| HiHp In PhaseLs | 65 | Stahl Optics | 88 |
| HiHp PrChrg Cntc | 73 | VoltageFdbk Loss | 43 |
| HiHP PwrBd Otemp | 75 | VPL/MC Comm Fail | 28 |
| HiHp PwrBd PrcEr | 72 | Vref Decel Fail | 2 |






Supplemental Information

Chapter Objectives

| For Information on ... | See Page... |
|-------------------------------------------------------------------|----------------------|
| Specifications | A-1 |
| DPI Communication Configurations | A-5 |
| Output Devices | A-7 |
| Drive, Fuse & Circuit Breaker Ratings | A-7 |
| List of Motors with Compatible Thermistor Ratings | A-30 |
| Auxiliary Power Supply | A-31 |
| Drive Frame Size to HP/kW Ratings Cross Reference | A-31 |
| Approximate Dimensions | A-33 |

Specifications

| Category | Specification | | | | | | | | | | | |
|------------|-------------------------------|---------------------------------------------------------------------------------------------------------------------------------------|--------|----------|--------|-------------------------|-----------------------------------|-----------------------------------------------------------------------------------------------------------------|---------|---------|---------|---------|
| | | Frames 1-6 (690V Drive frames 5 & 6 only) | | | | | | Frames 9 & up | | | | |
| Protection | Drive | | | | | | | | | | | |
| | | 200-208V | 240V | 380/400V | 480V | 600V (frames 0-4) | 600V / 690V (frames 5&6) | 380/400V | 480V | 500V | 600V | 690V |
| | AC Input Overvoltage Trip: | 300VAC | 300VAC | 600VAC | 600VAC | 863VAC | 863VAC | 675VAC | 675V AC | 675V AC | 889VAC | 889VAC |
| | Bus Overvoltage Trip: | 405VDC | 405VDC | 810VDC | 810VDC | 1164VDC | 1164VDC | 911VDC | 911VDC | 911VDC | 1200VDC | 1200VDC |
| | Bus Undervoltage Trip: | Adjustable | | | | | | Adjustable | | | | |
| | Nominal Bus Voltage: | 281VDC | 324VDC | 540VDC | 648VDC | 810VDC | 931VDC | 540VDC | 648VDC | 645VDC | 810VDC | 931VDC |
| | All Drives | | | | | | | | | | | |
| | Heat Sink Thermistor: | Monitored by microprocessor overtemp trip | | | | | | Monitored by microprocessor overtemp trip | | | | |
| | Drive Overcurrent Trip | Calculated value, 105% of motor rated to 200% of drive rated 105% of 3 sec. rating (158%-210%) 143% of 3 sec rating (215%-287%) | | | | | | Calculated value, 105% of motor rated to 200% of drive rated 360% of rated Heavy Duty current (typical) — | | | | |
| | Software Current Limit: | | | | | | | | | | | |
| | Hardware Current Limit: | | | | | | | | | | | |
| | Instantaneous Current Limit: | | | | | | | | | | | |
| | Line Transients: | Up to 6000 volts peak per IEEE C62.41-1991 | | | | | | up to 6000 volts peak per IEEE C62.41-1991 | | | | |
| | Control Logic Noise Immunity: | Showering arc transients up to 1500V peak | | | | | | Showering arc transients up to 1500V peak | | | | |
| | Power Ride-Thru: | 15 milliseconds at full load | | | | | | 15 milliseconds at full load | | | | |
| | Logic Control Ride-Thru | 0.25 sec., drive not running | | | | | | 0.25 seconds, drive not running | | | | |
| | Ground Fault Trip: | Phase-to-ground on drive output | | | | | | Phase-to-ground on drive output | | | | |
| | Short Circuit Trip: | Phase-to-phase on drive output | | | | | | Phase-to-phase on drive output | | | | |

| Specification | | | | | | | | | | | | | | | | | | | | | | |
|------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------|-------------|------------------------|---|--------|-------|----|--------|-------|----|---------|-------|---|---------|-------|---|---------|-------|---|---------|-------|
| Category | | | | | | | | | | | | | | | | | | | | | | |
| Agency Certification | | | | | | | | | | | | | | | | | | | | | | |
| | <div>Frames 1-6 (690V Drive frames 5 & 6 only)</div> <div>The drive is designed to meet applicable requirements of the following codes/standards: IEC 61800-2 Adjustable speed electrical power drive systems - General requirements IEC 61800-5-1 Adjustable speed electrical power drive systems - Safety requirements NFPA 70 – US National Electric Code NEMA 250 – Enclosures for Electrical Equipment</div> <div>UL and cUL Listed to UL508C and CAN/CSA - 22.2 No. 14-95</div> | | | | | | | | | | | | | | | | | | | | | |
| | <div>Frames 9 & up</div> <div>The drive is designed to meet applicable requirements of the following codes/standards: IEC 61800-2 Adjustable speed electrical power drive systems - General requirements IEC 61800-5-1 Adjustable speed electrical power drive systems - Safety requirements NFPA 70 - US National Electrical Code</div> <div>UL and cUL Listed to UL508C and CAN/CSA - 22.2 No. 14-95</div> | | | | | | | | | | | | | | | | | | | | | |
|  | | | | | | | | | | | | | | | | | | | | | | |
|  | <div>Marked for all applicable European Directives EMC Directive (89/336/EEC) Emissions EN 61800-3 Adjustable Speed electrical power drive systems Part 3 Immunity EN 61800-3 Second Environment, Restricted Distribution Low Voltage Directive (73/23/EEC) EN 50178 Electronic Equipment for use in Power Installations</div> | | | | | | | | | | | | | | | | | | | | | |
|  | <div>NA</div> | | | | | | | | | | | | | | | | | | | | | |
|  | <div>Certified to ATEX directive 94/9/EC. Group II Category (2) GD Applications with ATEX Approved Motors. Refer to Appendix J for more information.</div> | | | | | | | | | | | | | | | | | | | | | |
|  | <div>TUV Rheinland (applies to frames 1 - 6, 200/400V, and frames 5 & 6, 690V only) TUV Functional Safety Report only for frames 1 - 4, 600V (no FS mark on the label)</div> | | | | | | | | | | | | | | | | | | | | | |
| | <div>Certified to AS/NZS, 1997 Group 1, Class A.</div> | | | | | | | | | | | | | | | | | | | | | |
| | <div>Certified to ATEX directive 94/9/EC. Group II Category (2) GD Applications with ATEX Approved Motors. Refer to Appendix J for more information.</div> | | | | | | | | | | | | | | | | | | | | | |
| | <div>TUV functional safety report only (no FS mark on the label)</div> | | | | | | | | | | | | | | | | | | | | | |
| Environment | | | | | | | | | | | | | | | | | | | | | | |
| Altitude: | <div>1000 m (3300 ft.) max. without derating</div> | | | | | | | | | | | | | | | | | | | | | |
| Surrounding Air Temperature without Derating: | | | | | | | | | | | | | | | | | | | | | | |
| Open Type: | <div>0 to 50° C (32 to 122° F)</div> | | | | | | | | | | | | | | | | | | | | | |
| IP20: | <div>0 to 50° C (32 to 122° F)</div> | | | | | | | | | | | | | | | | | | | | | |
| NEMA Type 1: | <div>0 to 40° C (32 to 104° F)</div> | | | | | | | | | | | | | | | | | | | | | |
| IP56, NEMA Type 4X: | <div>0 to 40° C (32 to 104° F) Note: Frames 9 & 10 are rated 0 to 40° C (32 to 104° F) surrounding air.</div> | | | | | | | | | | | | | | | | | | | | | |
| Storage Temperature (all const.): | <div>-40 to 70° C (-40 to 158° F)</div> | | | | | | | | | | | | | | | | | | | | | |
| Relative Humidity: | <div>5 to 95% non-condensing</div> | | | | | | | | | | | | | | | | | | | | | |
| Shock: | <div>10G peak for 11 ms duration (± 1.0 ms)</div> | | | | | | | | | | | | | | | | | | | | | |
| Vibration: | <div>0.152 mm (0.006 in.) displacement, 1G peak, 5.5 Hz</div> | | | | | | | | | | | | | | | | | | | | | |
| Sound | <div><table><tr><th>Frame</th><th>Fan Speed</th><th>Sound Level</th></tr><tr><td>1</td><td>30 CFM</td><td>59 dB</td></tr><tr><td>2</td><td>50 CFM</td><td>57 dB</td></tr><tr><td>3</td><td>120 CFM</td><td>61 dB</td></tr><tr><td>4</td><td>190 CFM</td><td>59 dB</td></tr><tr><td>5</td><td>200 CFM</td><td>71 dB</td></tr><tr><td>6</td><td>300 CFM</td><td>72 dB</td></tr></table><div>Note: Sound pressure level is measured at 2 meters.</div></div> | Frame | Fan Speed | Sound Level | 1 | 30 CFM | 59 dB | 2 | 50 CFM | 57 dB | 3 | 120 CFM | 61 dB | 4 | 190 CFM | 59 dB | 5 | 200 CFM | 71 dB | 6 | 300 CFM | 72 dB |
| Frame | Fan Speed | Sound Level | | | | | | | | | | | | | | | | | | | | |
| 1 | 30 CFM | 59 dB | | | | | | | | | | | | | | | | | | | | |
| 2 | 50 CFM | 57 dB | | | | | | | | | | | | | | | | | | | | |
| 3 | 120 CFM | 61 dB | | | | | | | | | | | | | | | | | | | | |
| 4 | 190 CFM | 59 dB | | | | | | | | | | | | | | | | | | | | |
| 5 | 200 CFM | 71 dB | | | | | | | | | | | | | | | | | | | | |
| 6 | 300 CFM | 72 dB | | | | | | | | | | | | | | | | | | | | |
| | <div><table><tr><th>Frame</th><th>Sound Level</th><th>Background Noise Level</th></tr><tr><td>9</td><td>78</td><td>49</td></tr><tr><td>10</td><td>77</td><td>49</td></tr><tr><td>13</td><td>76</td><td>46</td></tr><tr><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td></tr></table><div>Notes: Sound pressure level is measured at 1 meter. All devices measured are 400V IP21 and in power up mode. Refer to PFLEX-IN006..., PowerFlex 700H/S Installation Manual for Fan Speed information.</div></div> | Frame | Sound Level | Background Noise Level | 9 | 78 | 49 | 10 | 77 | 49 | 13 | 76 | 46 | | | | | | | | | |
| Frame | Sound Level | Background Noise Level | | | | | | | | | | | | | | | | | | | | |
| 9 | 78 | 49 | | | | | | | | | | | | | | | | | | | | |
| 10 | 77 | 49 | | | | | | | | | | | | | | | | | | | | |
| 13 | 76 | 46 | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | | | |
| Atmosphere | <div>Important: Drive must not be installed in an area where the ambient atmosphere contains volatile or corrosive gas, vapors or dust. If the drive is not going to be installed for a period of time, it must be stored in an area where it will not be exposed to a corrosive atmosphere.</div> | | | | | | | | | | | | | | | | | | | | | |
| | <div>Important: Drive must not be installed in an area where the ambient atmosphere contains volatile or corrosive gas, vapors or dust. If the drive is not going to be installed for a period of time, it must be stored in an area where it will not be exposed to a corrosive atmosphere.</div> | | | | | | | | | | | | | | | | | | | | | |

| Category | Specification | | |
|------------|--------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| | | Frames 1-6 (690V Drive frames 5 & 6 only) | Frames 9 & up |
| Electrical | AC Input Voltage Tolerance: | See Input Voltage Range/Tolerance on page C-1 for Full Power and Operating Range | See Input Voltage Range/Tolerance on page C-1 for Full Power and Operating Range |
| | Frequency Tolerance: | 47-63 Hz | 47-63 Hz. |
| | Input Phases: | Three-phase input provides full rating for all drives. Single-phase operation provides 50% of rated current. | Three-phase input provides full rating for all drives. Single-phase operation provides 50% of rated current. |
| | DC Input Voltage Tolerance | +/- 10% of Nominal Bus Voltage (above) | +/- 10% of Nominal Bus Voltage (above) |
| | Displacement Power Factor: | 0.98 across speed range | 0.98 across speed range |
| | Efficiency: | 97.5% at rated amps, nominal line volts. | 97.5% at rated amps, nominal line volts. |
| | Max. Short Circuit Current Rating: Using Recommended Fuse or Circuit Breaker Type | Maximum short circuit current rating to match specified fuse/circuit breaker capability. ≤ 200,000 Amps | ≤ 200,000 Amps |
| | Maximum Drive to Motor Power Ratio | The drive to motor rating cannot exceed a 2:1 ratio | The drive to motor rating cannot exceed a 2:1 ratio |
| Control | Method Induction Motor: Brushless Motor: | Sine coded PWM with programmable carrier frequency, Indirect Self-Organized, Field-Oriented Control, Current-regulated. Ratings apply to all drives. Refer to the <i>PowerFlex® 700S - Phase II Control Reference Manual</i> , publication PFLEX-RM003, for derating guidelines. The drive can be supplied as 6 pulse or 12 pulse in a configured package. | Sine coded PWM with programmable carrier frequency, Indirect Self-Organized, Field-Oriented Control, Current-regulated. Ratings apply to all drives. Refer to the <i>PowerFlex® 700S - Phase II Control Reference Manual</i> , publication PFLEX-RM003, for derating guidelines. The drive can be supplied as 6 pulse or 12 pulse in a configured package. |
| | Carrier Frequency | Drive rating: 4 kHz Settings: 2, 4, 6, 8, 10 kHz (6 kHz is for V/Hz operation only) | Drive rating: 2 kHz Settings: 2, 4, 6, 8, 10 kHz (6 kHz is for V/Hz operation only) |
| | Output Voltage Range: | 0 to rated motor voltage | 0 to rated motor voltage |
| | Output Frequency Range: | 0 – 400 Hz | 0 – 400 Hz Note: For output frequencies above 320 - 400 Hz consult the factory. |
| | Speed Control | Speed regulation - without feedback 0.1% of base speed across 120:1 speed range 120:1 operating range 50 rad/sec bandwidth | Speed regulation - without feedback 0.1% of base speed across 120:1 speed range 120:1 operating range 50 rad/sec bandwidth |
| | | Speed regulation - with feedback 0.001% of base speed across 120:1 speed range 1000:1 operating range 744 rad/sec bandwidth | Speed regulation - with feedback 0.001% of base speed across 120:1 speed range 1000:1 operating range 300 rad/sec bandwidth |
| | Torque Regulation | Torque Regulation - without feedback +/-5%, 600 rad/sec bandwidth | Torque Regulation - without feedback +/-10%, 600 rad/sec bandwidth |
| | | Torque Regulation - with feedback +/-2%, 2500 rad/sec bandwidth | Torque Regulation - with feedback +/-5%, 2500 rad/sec bandwidth |
| | Selectable Motor Control: | Field Oriented Control with and without a feedback device and permanent magnet motor control | Field Oriented Control with and without a feedback device and permanent magnet motor control |
| | Stop Modes: | Multiple programmable stop modes including – Ramp, Coast and Current Limit | Multiple programmable stop modes including – Ramp, Coast and Current Limit |
| | Accel/Decel | Independently programmable accel and decel times adjustable from 0 to 6553.5 in 0.1 second increments. | Independently programmable accel and decel times adjustable from 0 to 6553.5 in 0.1 second increments. |
| | S-Curve Time | Adjustable from 0.5 to 4.0 seconds | Adjustable from 0.5 to 4.0 seconds |
| | Intermittent Overload: | 110% Overload capability for up to 1 minute 150% Overload capability for up to 3 seconds | 110% Overload capability for up to 1 minute 150% Overload capability for up to 3 seconds |
| | Current Limit Capability: | Independent Motoring and Regenerative Power Limits programmable to 800% of rated output current | Independent Motoring and Regenerative Power Limits programmable to 800% of rated output current |
| | Electronic Motor Overload Protection | Class 10 protection with speed sensitive response. Investigated by U.L. to comply with N.E.C. Article 430 U.L. File E59272, volume 12. | Class 10 protection with speed sensitive response. Investigated by U.L. to comply with N.E.C. Article 430 U.L. File E59272, volume 12. |

| | Specification | | | | | | | | | |
|------------|----------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---|--------|---------|---------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------|
| Category | | Frames 1-6 (690V Drive frames 5 & 6 only) | | | | | | Frames 9 & up | | |
| Feedback | Encoder Inputs (2): | Dual Channel Plus Marker, Isolated with differential transmitter Output (Line Drive) Incremental, Dual Channel Quadrature type | | | | | | Dual Channel Plus Marker, Isolated with differential transmitter Output (Line Drive) Incremental, Dual Channel Quadrature type | | |
| | Encoder PPR Rating: | Encoder PPR ratings are limited to the values specified in the table below: PPR Rating Values: | | | | | | | | |
| | | n = | 2 ⁿ = | x | mod 75 | mod 125 | mod 225 | mod 375 | mod 625 | mod1125 |
| | | 0 | 1 | | 75 | 125 | 225 | 375 | 625 | 1125 |
| | | 1 | 2 | | 150 | 250 | 450 | 750 | 1250 | 2250 |
| | | 2 | 4 | | 300 | 500 | 900 | 1500 | 2500 | 4500 |
| | | 3 | 8 | | 600 | 1000 | 1800 | 3000 | 5000 | 9000 |
| | | 4 | 16 | | 1200 | 2000 | 3600 | 6000 | 10000 | 18000 |
| | | 5 | 32 | | 2400 | 4000 | 7200 | 12000 | 20000 | -- |
| | | 6 | 64 | | -- | -- | -- | -- | -- | -- |
| | | 7 | 128 | | -- | -- | -- | -- | -- | -- |
| | | 8 | 256 | | -- | -- | -- | -- | -- | -- |
| | | 9 | 512 | | -- | -- | -- | -- | -- | -- |
| | | 10 | 1024 | | -- | -- | -- | -- | -- | -- |
| | | 11 | 2048 | | -- | -- | -- | -- | -- | -- |
| | | 12 | 4096 | | -- | -- | -- | -- | -- | -- |
| | | 13 | 8192 | | -- | -- | -- | -- | -- | -- |
| | | 14 | 16384 | | -- | -- | -- | -- | -- | -- |
| | | Encoder Voltage Supply: | 5V DC or 12 V DC 320 mA/channel 5V DC minimum high state voltage of 3.0V DC, maximum low state voltage at 0.4V DC 12 V DC minimum high state voltage of 7.0V DC, maximum low state voltage of 0.4V DC | | | | | | 5V DC or 12 V DC 320 mA/channel 5V DC minimum high state voltage of 3.0V DC, maximum low state voltage at 0.4V DC 12 V DC minimum high state voltage of 7.0V DC, maximum low state voltage of 0.4V DC | |
| | | Maximum Input Frequency: | 400 kHz | | | | | | 400 kHz | |
| | | Stegmann Option: | | | | | | | | |
| | Encoder Voltage Supply: | 11.5V DC @ 130 mA | | | | | | 11.5V DC @ 130 mA | | |
| | Hi-Resolution Feedback: | Sine/Cosine 1V P-P Offset 2.5 | | | | | | Sine/Cosine 1V P-P Offset 2.5 | | |
| | Maximum Cable Length: | 182 m (600 ft.) | | | | | | 182 m (600 ft.) | | |
| | RS-485 Interface: | Hi-Resolution Feedback Option card obtains the following information via the Hiperface RS-485 interface shortly after power-up: Address, Command Number, Mode, Number of turns, Number of Sine/Cos cycles, Checksum | | | | | | Hi-Resolution Feedback Option card obtains the following information via the Hiperface RS-485 interface shortly after power-up: Address, Command Number, Mode, Number of turns, Number of Sine/Cos cycles, Checksum | | |
| | Customer-I/O Plug (P1) - Hi Res: | Allen-Bradley PN: S94262912 Weidmuller PN: BL3.50/90/12BK | | | | | | Allen-Bradley PN: S94262912 Weidmuller PN: BL3.50/90/12BK | | |
| | Resolver Option: | | | | | | | | | |
| | Excitation Frequency: | 2400 Hz | | | | | | 2400 Hz | | |
| | Excitation Voltage: | 4.25-26 Vrms | | | | | | 4.25-26 Vrms | | |
| | Operating Frequency Range: | 1 - 10 kHz | | | | | | 1 - 10 kHz | | |
| | Resolver Feedback Voltage: | 2V ± 300 mV | | | | | | 2V ± 300 mV | | |
| | Maximum Cable Length: | 304.8 meters (1000 ft.) | | | | | | 304.8 meters (1000 ft.) | | |
| DriveLogix | User Available MemoryBase: | 1.5 megabytes | | | | | | 1.5 megabytes | | |
| | Battery: | 1769-BA 0.59g lithium | | | | | | 1769-BA 0.59g lithium | | |
| | Serial Cable: | 1761-CBLPM02 to 1761-NET-AIC 1761-CBLPA00 to 1761-NET-AIC 1756-CP3 directly to controller 1747-CP3 directly to controller category 3 (2) | | | | | | 1761-CBLPM02 to 1761-NET-AIC 1761-CBLPA00 to 1761-NET-AIC 1756-CP3 directly to controller 1747-CP3 directly to controller category 3 (2) | | |
| | Compact I/O Connection: | Up to (16) modules | | | | | | Up to (16) modules | | |
| | Cable: | 20D-DL2-CL3 20D-DL2-CR3 | | | | | | 20D-DL2-CL3 20D-DL2-CR3 | | |

DPI Communication Configurations

Typical Programmable Controller Configurations

Important: If programs are written that continuously write information to the drive, care must be taken to properly format the block transfer. If attribute 10 is selected for the block transfer, values will be written only to RAM and will not be saved by the drive. This is the preferred attribute for continuous transfers. If attribute 9 is selected, each program scan will complete a write to the drives non-volatile memory (EEPROM). Since the EEPROM has a fixed number of allowed writes, continuous block transfers will quickly damage the EEPROM. Do Not assign attribute 9 to continuous block transfers. Refer to the individual communications adapter User Manual for additional details.

Logic Command Word

| Logic Bits | | | | | | | | | | | | | | | | Command | Description | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|------------|----|----|---------------------|----|----|---|---|---|---|---|---|---|---|---|---|----------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------|--|--|--|----|----|----|--|---|---|---|-------------|---|---|---|-------------|---|---|---|------------|---|---|---|---------------------|---|---|---|---------------------|---|---|---|---------------------|---|---|---|---------------------|---|---|---|---------------------|
| 15 | 14 | 13 | 12 | 11 | 10 | 9 | 8 | 7 | 6 | 5 | 4 | 3 | 2 | 1 | 0 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | x | Normal Stop | 0 = Not Normal Stop 1 = Normal Stop | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | x | | Start ⁽¹⁾ | 0 = Not Start 1 = Start | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | x | | | Jog 1 | 0 = Not Jog using [Jog Speed 1] 1 = Jog using [Jog Speed 1] | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | x | | | | Clear Fault ⁽²⁾ | 0 = Not Clear Fault 1 = Clear Fault | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | x | x | | | | | Unipolar Direction | 00 = No Command 01 = Forward Command 10 = Reverse Command 11 = Hold Direction Control | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | x | | | | | | | Reserved | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | x | | | | | | | | Jog 2 | 0 = Not Jog using [Jog Speed 2] 1 = Jog using [Jog Speed 2] | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | x | | | | | | | | | Current Limit Stop | 0 = Not Current Limit Stop 1 = Current Limit Stop | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | x | | | | | | | | | | | Coast Stop | 0 = Not Coast to Stop 1 = Coast to Stop | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | x | | | | | | | | | | | Reserved | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | x | | | | | | | | | | | | Reserved | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | x | | | | | | | | | | | | | Spd Ref Sel0 | <table><tr><th colspan="3">Bits</th><th></th></tr><tr><th>14</th><th>13</th><th>12</th><th></th></tr><tr><td>0</td><td>0</td><td>0</td><td>= Spd Ref A</td></tr><tr><td>0</td><td>0</td><td>1</td><td>= Spd Ref B</td></tr><tr><td>0</td><td>1</td><td>0</td><td>= Preset 2</td></tr><tr><td>0</td><td>1</td><td>1</td><td>= Ref. 3 (Preset 3)</td></tr><tr><td>1</td><td>0</td><td>0</td><td>= Ref. 4 (Preset 4)</td></tr><tr><td>1</td><td>0</td><td>1</td><td>= Ref. 5 (Preset 5)</td></tr><tr><td>1</td><td>1</td><td>0</td><td>= Ref. 6 (Preset 6)</td></tr><tr><td>1</td><td>1</td><td>1</td><td>= Ref. 7 (Preset 7)</td></tr></table> | Bits | | | | 14 | 13 | 12 | | 0 | 0 | 0 | = Spd Ref A | 0 | 0 | 1 | = Spd Ref B | 0 | 1 | 0 | = Preset 2 | 0 | 1 | 1 | = Ref. 3 (Preset 3) | 1 | 0 | 0 | = Ref. 4 (Preset 4) | 1 | 0 | 1 | = Ref. 5 (Preset 5) | 1 | 1 | 0 | = Ref. 6 (Preset 6) | 1 | 1 | 1 | = Ref. 7 (Preset 7) |
| Bits | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 14 | 13 | 12 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 0 | 0 | 0 | = Spd Ref A | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 0 | 0 | 1 | = Spd Ref B | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 0 | 1 | 0 | = Preset 2 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 0 | 1 | 1 | = Ref. 3 (Preset 3) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1 | 0 | 0 | = Ref. 4 (Preset 4) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1 | 0 | 1 | = Ref. 5 (Preset 5) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1 | 1 | 0 | = Ref. 6 (Preset 6) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1 | 1 | 1 | = Ref. 7 (Preset 7) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | x | | | | | | | | | | | | | | Spd Ref Sel1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | x | | | | | | | | | | | | | | | Spd Ref Sel2 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
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| x | | | | | | | | | | | | | | | | Reserved | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

⁽¹⁾ A Not Stop condition (logic bit 0 = 0, logic bit 8 = 0, and logic bit 9 = 0) must first be present before a 1 = Start condition will start the drive.

⁽²⁾ To perform this command, the value must switch from "0" to "1."

Logic Status Word

| Logic Bits | | | | | | | | | | | | | | | | Status | Description |
|------------|----|----|----|----|----|---|---|---|---|---|---|---|---|---|---|-------------------------|----------------------------------------------------|
| 15 | 14 | 13 | 12 | 11 | 10 | 9 | 8 | 7 | 6 | 5 | 4 | 3 | 2 | 1 | 0 | | |
| | | | | | | | | | | | | | | | x | Active | 0 = Not Active 1 = Active |
| | | | | | | | | | | | | | | x | | Running | 0 = Not Running 1 = Running |
| | | | | | | | | | | | | | x | | | Command Direction | 0 = Reverse 1 = Forward |
| | | | | | | | | | | | x | | | | | Actual Direction | 0 = Reverse 1 = Forward |
| | | | | | | | | | | x | | | | | | Accel | 0 = Not Accelerating 1 = Accelerating |
| | | | | | | | | | | x | | | | | | Decel | 0 = Not Decelerating 1 = Decelerating |
| | | | | | | | | x | | | | | | | | Jogging | 0 = Not Jogging 1 = Jogging |
| | | | | | | | x | | | | | | | | | Fault | 0 = No Fault 1 = Fault |
| | | | | | | | x | | | | | | | | | Alarm | 0 = No Alarm 1 = Alarm |
| | | | | | | x | | | | | | | | | | Flash Mode | 0 = Not in Flash Mode 1 = In Flash Mode |
| | | | | x | | | | | | | | | | | | Run Ready | 0 = Not Ready to Run 1 = Ready to Run |
| | | | x | | | | | | | | | | | | | At Limit ⁽¹⁾ | 0 = Not At Limit 1 = At Limit |
| | | x | | | | | | | | | | | | | | Tach Loss Sw | 0 = Not Tach Loss Sw 1 = Tach Loss Sw |
| | x | | | | | | | | | | | | | | | At Zero Spd | 0 = Not At Zero Speed 1 = At Zero Speed |
| x | | | | | | | | | | | | | | | | At Setpt Spd | 0 = Not At Setpoint Speed 1 = At Setpoint Speed |
| x | | | | | | | | | | | | | | | | Enable | 0 = Not Enabled 1 = Enabled |

⁽¹⁾ See Parameter 304 - [Limit Status] in the PowerFlex 700S drive for a description of the limit status conditions.

DPI Device Limitations

PowerFlex 700S Drives use a 450mA device on the 12V DPI power supply. Due to the typical load of a external DPI device of 140mA, there is a three DPI device limit.

Output Devices

Common mode cores are internal to the drive. For information on output devices such as output contactors, cable terminators and output reactors refer to the *PowerFlex Reference Manual, Vol. 2*.

Drive, Fuse & Circuit Breaker Ratings

The tables on the following pages provide PowerFlex 700S drive ratings (including continuous, 1 minute, and 3 second) and recommended AC input line fuses and circuit breakers.

Fuse Size

Fuse sizes are the recommended minimum size based on 40° C ambient, 75° C wiring and U.S. N.E.C. Other country, state or local codes may require different fuse/circuit breaker ratings.

Fuse Type

The recommend fuse type is listed below. If available current ratings do not match the tables provided, the fuse rating that exceeds the drive continuous rating should be chosen.

- IEC

BS88 (British Standard) Parts 1 & 2 ⁽¹⁾, EN60269-1, Parts 1 & 2, type go or equivalent should be used for these drives.

- UL

UL requirements specify that UL Class CC, T or J fuses must be used for all drives in this section ⁽²⁾.

⁽¹⁾ Typical designations include, but may not be limited to the following; Ora 1 & 2:AC, AD, BC, BD, CD, DD, ED, EFS, EF, FF, FG, GF, GG, GH

⁽²⁾ Typical designations include; Type CC - KTK, FNQ-R
Type J - JKS, LPJ
Type T - JJS, JJN

208 Volt AC Input Protection Devices, Frames 1- 6

| Drive Catalog Number | kW Rating | PWM Freq. kHz | Temp. °C | Input Ratings | | | Output Amps | | | Dual Element Time Delay Fuse | | Non-Time Delay Fuse | | Circuit Breaker ⁽⁴⁾ | Motor Circuit Protector ⁽⁶⁾ | 140M Motor Starter with Adjustable Current Range ⁽⁷⁾⁽⁸⁾ | |
|----------------------|-----------|---------------|----------|---------------|------|-------|-------------|--------|-------|------------------------------|---------------------|---------------------|---------------------|--------------------------------|----------------------------------------|--------------------------------------------------------------------|------------|
| | | | | Amps | kVA | Cont. | 1 Min. | 3 Sec. | | Min. ⁽²⁾ | Max. ⁽³⁾ | Min. ⁽²⁾ | Max. ⁽³⁾ | | | Available Catalog Numbers ⁽⁹⁾ | |
| 20DB4P2 1 | 0.75 | 0.55 | 4 | 50 | 3.7 | 1.3 | 4.8 | 5.6 | 7.0 | 6 | 10 | 6 | 17.5 | 15 | 7 | M-C2E-B63 | M-D8E-B63 |
| 20DB6P8 1 | 1.5 | 1.1 | 4 | 50 | 6.8 | 2.4 | 7.8 | 10.4 | 13.8 | 10 | 15 | 10 | 30 | 30 | 15 | M-C2E-C10 | M-D8E-C10 |
| 20DB9P6 1 | 2.2 | 1.5 | 4 | 50 | 9.5 | 3.4 | 11 | 12.1 | 17 | 12 | 20 | 12 | 40 | 40 | 15 | M-C2E-C16 | M-D8E-C16 |
| 20DB015 1 | 4.0 | 3.0 | 4 | 50 | 15.7 | 5.7 | 17.5 | 19.3 | 26.3 | 20 | 35 | 20 | 70 | 70 | 30 | M-C2E-C20 | M-D8E-C20 |
| 20DB022 1 | 5.5 | 4.0 | 4 | 50 | 23.0 | 8.3 | 25.3 | 27.8 | 38 | 30 | 50 | 30 | 100 | 100 | 30 | M-C2E-C25 | M-D8E-C25 |
| 20DB028 2 | 7.5 | 5.5 | 4 | 50 | 29.6 | 10.7 | 32.2 | 38 | 50.6 | 40 | 70 | 40 | 125 | 125 | 50 | M-F8E-C32 | M-CMN-4000 |
| 20DB042 3 | 11 | 7.5 | 4 | 50 | 44.5 | 16.0 | 48.3 | 53.1 | 72.5 | 60 | 100 | 60 | 175 | 175 | 70 | M-F8E-C45 | M-CMN-6300 |
| 20DB052 3 | 15 | 11 | 4 | 50 | 51.5 | 18.6 | 56 | 64 | 86 | 80 | 125 | 80 | 200 | 200 | 100 | — | M-CMN-6300 |
| 20DB070 4 | 18.5 | 15 | 4 | 50 | 72 | 25.9 | 78.2 | 93.1 | 124.2 | 90 | 175 | 90 | 300 | 300 | 100 | — | M-CMN-9000 |
| 20DB080 4 | 22 | 18.5 | 4 | 50 | 84.7 | 30.5 | 92 | 117.3 | 156.4 | 110 | 200 | 110 | 350 | 350 | 150 | — | M-CMN-9000 |
| 20DB104 5 | 30 | — | 4 | 50 | 113 | 40.7 | 120 | 132 | 175 | 150 | 250 | 150 | 475 | 350 | 150 | — | — |
| 20DB130 5 | 37 | — | 4 | 50 | 84.7 | 30.5 | 92 | 138 | 175 | 125 | 200 | 125 | 350 | 300 | 150 | — | M-CMN-9000 |
| 20DB154 6 | 45 | — | 4 | 50 | 141 | 44.1 | 130 | 143 | 175 | 175 | 275 | 175 | 500 | 375 | 250 | — | — |
| 20DB192 6 | 55 | — | 4 | 50 | 113 | 35.3 | 104 | 156 | 175 | 125 | 225 | 125 | 400 | 300 | 150 | — | — |
| 20DB260 6 | 66 | — | 2 | 45 | 167 | 60.1 | 177 | 195 | 266 | 225 | 350 | 225 | 500 | 500 | 250 | — | — |
| | | | | | 141 | 50.9 | 150 | 225 | 300 | 200 | 300 | 200 | 500 | 450 | 250 | — | — |
| | | | | | 208 | 75.0 | 221 | 243 | 308 | 300 | 450 | 300 | 600 | 600 | 400 | — | — |
| | | | | | 167 | 60.1 | 177 | 266 | 308 | 225 | 350 | 225 | 500 | 500 | 250 | — | — |
| | | | | | 255 | 96.7 | 260 | 286 | 390 | 300 | 575 | 300 | 750 | 750 | 400 | — | — |
| | | | | | 199 | 71.7 | 205 | 305 | 410 | 225 | 450 | 225 | 600 | 600 | 400 | — | — |

(1) The temperature rating listed for frame size 1-4 drives is for NEMA open types only. The adhesive tape label must be removed in order to operate at this temperature, otherwise the ambient operating temperature of these drives is 40°C.

(2) Minimum protection device size is the lowest rated device that supplies maximum protection without nuisance tripping.

(3) Maximum protection device size is the highest rated device that supplies drive protection. For US NEC, minimum size is 125% of motor FLA. Ratings shown are maximum.

(4) Circuit Breaker - inverse time breaker. For US NEC, minimum size is 125% of motor FLA. Ratings shown are maximum.

(5) Maximum allowable rating by US NEC. Exact size must be chosen for each installation.

(6) Motor Circuit Protector - instantaneous trip circuit breaker. For US NEC minimum size is 125% of motor FLA. Ratings shown are maximum.

(7) Bulletin 140M with adjustable current range should have the current trip set to the minimum range that the device will not trip.

(8) Manual Self-Protected (Type E) Combination Motor Controller, UL listed for 208 Wye or Delta, 240 Wye or Delta, 480Y/277 or 600Y/ 347. Not UL listed for use on 480V or 600V Delta/Delta systems.

(9) The AIC ratings of the Bulletin 140M Motor Protector may vary. See publication 140M-SG001.

240 Volt AC Input Protection Devices, Frames 1 - 6

| Drive Catalog Number | HP Range | HP ND | PWM Freq. kHz | Temp. °C | Input Ratings | | Output Amps | | | Dual Element Time Delay Fuse | | Non-Time Delay Fuse | | Circuit Breaker (4) | Motor Circuit Protector (6) | 140M Motor Starter with Adjustable Current Range (7)(8) | |
|----------------------|----------|-------|---------------|----------|---------------|------|-------------|--------|--------|------------------------------|----------|---------------------|----------|---------------------|-----------------------------|---------------------------------------------------------|-----------|
| | | | | | Amps | kVA | Cont. | 1 Min. | 3 Sec. | Min. (2) | Max. (3) | Min. (2) | Max. (3) | | | Available Catalog Numbers (9) | |
| 20DB4P2 | 1 | 1 | 0.75 | 4 | 50 | 3.3 | 1.4 | 4.2 | 4.8 | 6.4 | 5 | 8 | 15 | 15 | 7 | M-C2E-B63 | M-D8E-B63 |
| 20DB6P8 | 1 | 2 | 1.5 | 4 | 50 | 5.9 | 2.4 | 6.8 | 9 | 12 | 10 | 15 | 25 | 25 | 15 | M-C2E-C10 | M-D8E-C10 |
| 20DB8P6 | 1 | 3 | 2 | 4 | 50 | 8.3 | 3.4 | 9.6 | 10.6 | 14.4 | 12 | 20 | 35 | 35 | 15 | M-C2E-C10 | M-D8E-C10 |
| 20DB015 | 1 | 5 | 3 | 4 | 50 | 13.7 | 5.7 | 15.3 | 16.8 | 23 | 20 | 30 | 60 | 60 | 30 | M-C2E-C16 | M-D8E-C16 |
| 20DB022 | 1 | 7.5 | 5 | 4 | 50 | 19.9 | 8.3 | 22 | 24.2 | 33 | 25 | 50 | 80 | 80 | 30 | M-C2E-C25 | M-D8E-C25 |
| 20DB028 | 2 | 10 | 7.5 | 4 | 50 | 25.7 | 10.7 | 28 | 33 | 44 | 35 | 60 | 100 | 100 | 50 | — | — |
| 20DB042 | 3 | 15 | 10 | 4 | 50 | 38.5 | 16.0 | 42 | 46.2 | 63 | 50 | 90 | 150 | 150 | 50 | — | — |
| 20DB052 | 3 | 20 | 15 | 4 | 50 | 47.7 | 19.8 | 52 | 63 | 80 | 60 | 100 | 200 | 200 | 100 | — | — |
| 20DB070 | 4 | 25 | 20 | 4 | 50 | 64.2 | 26.7 | 70 | 78 | 105 | 90 | 150 | 275 | 275 | 100 | — | — |
| 20DB080 | 4 | 30 | 25 | 4 | 50 | 73.2 | 30.5 | 80 | 105 | 140 | 100 | 180 | 300 | 300 | 100 | — | — |
| 20DB104 | 5 | 40 | — | 4 | 50 | 98 | 40.6 | 104 | 115 | 175 | 125 | 225 | 400 | 300 | 150 | — | — |
| 20DB130 | 5 | 50 | — | 4 | 50 | 122 | 50.7 | 130 | 143 | 175 | 175 | 275 | 500 | 375 | 250 | — | — |
| 20DB154 | 6 | 60 | — | 4 | 50 | 145 | 60.1 | 154 | 169 | 231 | 200 | 300 | 600 | 450 | 250 | — | — |
| 20DB192 | 6 | 75 | — | 4 | 50 | 180 | 74.9 | 192 | 211 | 288 | 225 | 400 | 600 | 575 | 250 | — | — |
| 20DB260 | 6 | 100 | — | 2 | 45 | 233 | 96.8 | 260 | 286 | 390 | 300 | 575 | 750 | 400 | 400 | — | — |
| | | | | 2 | 50 | 169 | 74.9 | 205 | 305 | 410 | 225 | 450 | 600 | 600 | 400 | — | — |

(1) The temperature rating listed for frame size 1-4 drives is for NEMA open types only. The adhesive tape label must be removed in order to operate at this temperature, otherwise the ambient operating temperature of these drives is 40°C.

(2) Minimum protection device size is the lowest rated device that supplies maximum protection without nuisance tripping.

(3) Maximum protection device size is the highest rated device that supplies drive protection. For US NEC, minimum size is 125% of motor FLA. Ratings shown are maximum.

(4) Circuit Breaker - inverse time breaker. For US NEC, minimum size is 125% of motor FLA. Ratings shown are maximum.

(5) Maximum allowable rating by US NEC. Exact size must be chosen for each installation.

(6) Motor Circuit Protector - instantaneous trip circuit breaker. For US NEC minimum size is 125% of motor FLA. Ratings shown are maximum.

(7) Bulletin 140M with adjustable current range should have the current trip set to the minimum range that the device will not trip.

(8) Manual Self-Protected (Type E) Combination Motor Controller, UL listed for 208 Wye or Delta, 240 Wye or Delta, 480Y/277 or 600Y/347. Not UL listed for use on 480V or 600V Delta/Delta systems.

(9) The AIC ratings of the Bulletin 140M Motor Protector may vary. See publication 140M-SG001.

400 Volt AC Input Protection Devices, Frames 1 - 6

| Drive Catalog Number | kW Rating | PWM Freq. kHz | Temp. ⁽³⁾ °C | Input Ratings | | | Output Amps | | Dual Element Time Delay Fuse | | Non-Time Delay Fuse | | Circuit Breaker ⁽⁷⁾ | Motor Circuit Protector ⁽⁹⁾ | 140M Motor Starter with Adjustable Current Range ⁽¹⁰⁾⁽¹¹⁾ |
|------------------------|-----------|---------------|-------------------------|---------------|------|-------|-------------|--------|------------------------------|---------------------|---------------------|---------------------|--------------------------------|----------------------------------------|----------------------------------------------------------------------|
| | | | | Amps | kVA | Cont. | 1 Min. | 3 Sec. | Min. ⁽⁵⁾ | Max. ⁽⁶⁾ | Min. ⁽⁵⁾ | Max. ⁽⁶⁾ | | | |
| 20DC2P1 | 1 | 0.75 | 50 | 1.8 | 1.3 | 2.1 | 2.4 | 3.2 | 3 | 6 | 3 | 8 | 15 | 3 | M-C2E-B25 M-D8E-B25 |
| 20DC3P5 | 1 | 1.5 | 50 | 3.2 | 2.2 | 3.5 | 4.5 | 6.0 | 6 | 7 | 6 | 12 | 15 | 7 | M-C2E-B40 M-D8E-B40 |
| 20DC5P0 | 1 | 2.2 | 50 | 4.6 | 3.2 | 5.0 | 5.5 | 7.5 | 6 | 10 | 6 | 20 | 20 | 7 | M-C2E-B63 M-D8E-B63 |
| 20DC8P7 | 1 | 4 | 50 | 7.9 | 5.5 | 8.7 | 9.9 | 13.2 | 15 | 17.5 | 15 | 30 | 30 | 15 | M-C2E-C10 M-D8E-C10 |
| 20DC011 | 1 | 5.5 | 50 | 10.8 | 7.5 | 11.5 | 13 | 17.4 | 15 | 25 | 15 | 45 | 45 | 15 | M-C2E-C16 M-D8E-C16 |
| 20DC015 | 1 | 7.5 | 50 | 14.4 | 10.0 | 15.4 | 17.2 | 23.1 | 20 | 30 | 20 | 60 | 60 | 20 | M-C2E-C20 M-D8E-C20 |
| 20DC022 | 1 | 11 | 50 | 20.6 | 14.3 | 22 | 24.2 | 33 | 30 | 45 | 30 | 80 | 80 | 30 | M-C2E-C25 M-D8E-C25 |
| 20DC030 | 2 | 15 | 50 | 28.4 | 19.7 | 30 | 33 | 45 | 35 | 60 | 35 | 120 | 120 | 50 | M-F8E-C32 |
| 20DC037 | 2 | 18.5 | 50 | 35.0 | 24.3 | 37 | 45 | 60 | 45 | 80 | 45 | 125 | 125 | 50 | M-F8E-C45 |
| 20DC043 | 3 | 22 | 50 | 40.7 | 28.2 | 43 | 56 | 74 | 60 | 90 | 60 | 150 | 150 | 60 | M-F8E-C45 |
| 20DC056 | 3 | 30 | 50 | 53 | 36.7 | 56 | 64 | 86 | 70 | 125 | 70 | 200 | 200 | 100 | M-F8E-C45 |
| 20DC072 | 3 | 37 | 50 | 68.9 | 47.8 | 72 | 84 | 112 | 90 | 150 | 90 | 250 | 250 | 100 | M-F8E-C45 |
| 20DC085 ⁽¹⁾ | 4 | 45 | 50 | 81.4 | 56.4 | 85 | 94 | 128 | 110 | 200 | 110 | 300 | 300 | 150 | M-F8E-C45 |
| 20DC105 | 5 | 55 | 50 ⁽⁴⁾ | 100.5 | 69.6 | 105 | 116 | 158 | 125 | 225 | 125 | 400 | 400 | 150 | M-F8E-C45 |
| 20DC125 | 5 | 55 | 50 ⁽⁴⁾ | 121.1 | 83.9 | 125 | 138 | 163 | 150 | 275 | 150 | 500 | 500 | 250 | M-F8E-C45 |
| 20DC140 | 5 | 75 | 50 ⁽⁴⁾ | 135.6 | 94 | 140 | 154 | 210 | 200 | 300 | 200 | 400 | 400 | 250 | M-F8E-C45 |
| 20DC170 | 6 | 90 | 50 ⁽⁴⁾ | 164.6 | 114 | 170 | 187 | 255 | 250 | 375 | 250 | 600 | 600 | 400 | M-F8E-C45 |
| 20DC205 ⁽²⁾ | 6 | 110 | 50 ⁽⁴⁾ | 198.5 | 138 | 205 | 220 | 289 | 250 | 450 | 250 | 600 | 600 | 400 | M-F8E-C45 |
| 20DC260 | 6 | 132 | 50 ⁽⁴⁾ | 254.7 | 166 | 260 | 286 | 390 | 350 | 550 | 350 | 750 | 750 | 400 | M-F8E-C45 |
| | | | | | | | | | | | | | | | |

(1) 20DC085 current rating is limited to 45 degrees C ambient.

(2) 20DC205 current rating is limited to 40 degrees C ambient.

(3) The temperature rating listed for frame size 1-4 drives is for NEMA open types only. The adhesive tape label must be removed in order to operate at this temperature, otherwise the ambient operating temperature of these drives is 40°C.

(4) UL Type 12/IP54 (flange mount) heatsink ambient temperature rating is 40° C/ambient of unprotected drive portion (inside enclosure) is 55° C. The ambient temperature for the UL Type 12/IP54 standalone drives is 40° C.

(5) Minimum protection device size is the lowest rated device that supplies maximum protection without nuisance tripping.

(6) Maximum protection device size is the highest rated device that supplies drive protection. For US NEC, minimum size is 125% of motor FLA. Ratings shown are maximum.

(7) Circuit Breaker - inverse time breaker. For US NEC, minimum size is 125% of motor FLA. Ratings shown are maximum.

(8) Maximum allowable rating by US NEC. Exact size must be chosen for each installation.

(9) Motor Circuit Protector - instantaneous trip circuit breaker. For US NEC minimum size is 125% of motor FLA. Ratings shown are maximum.

(10) Bulletin 140M with adjustable current range should have the current trip set to the minimum range that the device will not trip.

(11) Manual Self-Protected (Type E) Combination Motor Controller, UL listed for 208 Wye or Delta, 240 Wye or Delta, 480V/277 or 600V/ 347. Not UL listed for use on 480V or 600V Delta/Delta systems.

(12) The AIC ratings of the Bulletin 140M Motor Protector may vary. See publication 140M-SG001.

400 Volt AC Input Protection Devices, Frames 9 - 11

| Drive Catalog Number | kW Rating ND | kW Rating HD | PWM Freq. kHz | Temp. °C | Input Ratings Amps | Output Amps | | Dual Element Time Delay Fuse | | Non-Time Delay Fuse | | Circuit Breaker (3) Max. (4) | Motor Circuit Protector (5) Max. | Watts Loss |
|----------------------------|--------------------|--------------------|---------------------|-------------|--------------------------|-------------|---------------|------------------------------|-------------------------------------|-------------------------------------|--------------------------------------|------------------------------------|----------------------------------------|---------------|
| | | | | | | Cont. | 1 Min. 3 Sec. | Min. (1) | Max. (2) | Min. (1) | Max. (2) | | | |
| 20DC261 | 9 | 132 | - | 2 | 40 | 263 | 287 | 410 | 350 | 550 | 700 | 700 | 400 | 2700 |
| | - | 110 | 2 | 40 | 207 | 205 | 308 | 410 | 275 | 450 | 600 | 600 | 300 | 2700 |
| 20DC300 | 9 | 160 | - | 2 | 40 | 302 | 300 | 330 | 400 | 650 | 900 | 900 | 400 | 3100 |
| | - | 132 | 2 | 40 | 247 | 245 | 368 | 490 | 350 | 500 | 700 | 700 | 400 | 3100 |
| 20DC385 | 10 | 200 | - | 2 | 40 | 388 | 385 | 424 | 600 | 500 | 1000 | 1100 | 600 | 4320 |
| | - | 160 | 2 | 40 | 302 | 300 | 450 | 600 | 400 | 650 | 900 | 900 | 400 | 4320 |
| 20DC460 | 10 | 250 | - | 2 | 40 | 463 | 460 | 506 | 770 | 1000 | 1200 | 1300 | 600 | 5335 |
| | - | 200 | 2 | 40 | 388 | 385 | 578 | 770 | 500 | 850 | 1000 | 1100 | 600 | 5335 |
| 20DC500 | 10 | 250 | - | 2 | 40 | 504 | 500 | 550 | 750 | 1000 | 1300 | 1500 | 700 | 5921 |
| | - | 250 | 2 | 40 | 423 | 420 | 630 | 840 | 550 | 900 | 1200 | 1200 | 600 | 5921 |
| 20DC590 | 11 | 315 | - | 2 | 40 | 594 | 590 | 649 | 956 | 1300 (1 per phs) 600 (2 per phs) | 1700 (1 per phs) 850 (2 per phs) | 1700 | 800 | 6620 |
| | - | 250 | 2 | 40 | 524 | 520 | 780 | 956 | 700 (1 per phs) 350 (2 per phs) | 1100 (1 per phs) 550 (2 per phs) | 1500 (1 per phs) 750 (2 per phs) | 1500 | 700 | 6620 |
| 20DC650 | 11 | 355 | - | 2 | 40 | 655 | 650 | 715 | 1062 | 1400 (1 per phs) 700 (2 per phs) | 1900 (1 per phs) 950 (2 per phs) | 1900 | 1000 | 7538 |
| | - | 315 | 2 | 40 | 594 | 590 | 885 | 1062 | 750 (1 per phs) 375 (2 per phs) | 1300 (1 per phs) 650 (2 per phs) | 1700 (1 per phs) 850 (2 per phs) | 1700 | 800 | 7538 |
| 20DC730 | 11 | 400 | - | 2 | 40 | 735 | 730 | 803 | 1095 | 1600 (1 per phs) 800 (2 per phs) | 2100 (1 per phs) 1050 (2 per phs) | 2100 | 1200 | 8312 |
| | - | 355 | 2 | 40 | 655 | 650 | 975 | 1170 | 1400 (1 per phs) 700 (2 per phs) | 1900 (1 per phs) 425 (2 per phs) | 2400 (1 per phs) 950 (2 per phs) | 1900 | 1000 | 8312 |

(1) Minimum protection device size is the lowest rated device that supplies maximum protection without nuisance tripping.

(2) Maximum protection device size is the highest rated device that supplies drive protection. For US NEC, minimum size is 125% of motor FLA. Ratings shown are maximum.

(3) Circuit Breaker - inverse time breaker. For US NEC, minimum size is 125% of motor FLA. Ratings shown are maximum

(4) Maximum allowable rating by US NEC. Exact size must be chosen for each installation.

(5) Motor Circuit Protector - instantaneous trip circuit breaker. For US NEC minimum size is 125% of motor FLA. Ratings shown are maximum

400 Volt AC Input Protection Devices, Frames 12 & 13

| Drive Catalog Number | kW Rating ND | kW Rating HD | PWM Freq. kHz | Temp. °C | Input Ratings Amps | Output Amps | | Dual Element Time Delay Fuse | | Non-Time Delay Fuse | | Circuit Breaker ⁽⁴⁾ Max. ⁽⁵⁾ | Motor Circuit Protector ⁽⁶⁾ Max. | Watts Loss |
|----------------------------|--------------------|--------------------|---------------------|-------------|--------------------------|-------------|--------|------------------------------|---------------------|---------------------|---------------------|----------------------------------------------------------|---------------------------------------------------|---------------|
| | | | | | | Cont. | 1 Min. | 3 Sec. | Min. ⁽¹⁾ | Max. ⁽³⁾ | Min. ⁽¹⁾ | Max. ⁽³⁾ | | |
| 20DC820 | 12 | 450 | - | 40 | 826 | 820 | 902 | 1230 | 1100 (1 per phs) | 1800 (1 per phs) | 1100 (1 per phs) | 2400 (1 per phs) | 1200 | 9201 |
| | - | - | 400 | 40 | 735 | 730 | 1095 | 1314 | 650 (2 per phs) | 900 (2 per phs) | 650 (2 per phs) | 1200 (2 per phs) | 1200 | 9201 |
| 20DC920 | 12 | 500 | - | 40 | 927 | 920 | 1012 | 1380 | 1000 (1 per phs) | 1600 (1 per phs) | 1000 (1 per phs) | 2100 (1 per phs) | 1200 | 10670 |
| | - | - | 450 | 40 | 826 | 820 | 1230 | 1476 | 500 (2 per phs) | 800 (2 per phs) | 500 (2 per phs) | 1050 (2 per phs) | 1200 | 10670 |
| 20DC1K0 | 12 | 560 | - | 40 | 1038 | 1030 | 1133 | 1555 | 1200 (1 per phs) | 2000 (1 per phs) | 1200 (1 per phs) | 2600 (1 per phs) | 1400 | 11729 |
| | - | - | 500 | 35 | 927 | 920 | 1370 | 1600 | 600 (2 per phs) | 1000 (2 per phs) | 600 (2 per phs) | 1300 (2 per phs) | 1200 | 11729 |
| 20DC1K1 | 13 | 630 | - | 40 | 1158 | 1150 | 1265 | 1620 | 1200 (1 per phs) | 2000 (1 per phs) | 1200 (1 per phs) | 2600 (1 per phs) | 1400 | 13801 |
| | - | - | 560 | 40 | 1038 | 1030 | 1545 | 1620 | 600 (2 per phs) | 1000 (2 per phs) | 600 (2 per phs) | 1300 (2 per phs) | 1500 | 13801 |
| 20DC1K3 | 13 | 710 | - | 40 | 1310 | 1300 | 1430 | 2079 | 1500 (2) | 2500 (2) | 1500 (2) | 3400 (2) | 1500 | 15077 |
| | - | - | 630 | 40 | 1158 | 1150 | 1725 | 2079 | 1500 (2) | 2500 (2) | 1700 (2) | 3800 (2) | 1700 | 15077 |
| 20DC1K4 | 13 | 800 | - | 40 | 1461 | 1450 | 1595 | 2175 | 1700 (2) | 2900 (2) | 1600 (2) | 3500 (2) | 1600 | 16511 |
| | - | - | 710 | 40 | 1209 | 1200 | 1800 | 2400 | 1600 (2) | 2700 (2) | 1900 (2) | 4200 (2) | 1900 | 16511 |

(1) Minimum protection device size is the lowest rated device that supplies maximum protection without nuisance tripping.

(2) Fuses and disconnect are supplied with AC input NEMA Type 1 drives.

(3) Maximum protection device size is the highest rated device that supplies drive protection. For US NEC, minimum size is 125% of motor FLA. Ratings shown are maximum.

(4) Circuit Breaker - inverse time breaker. For US NEC, minimum size is 125% of motor FLA. Ratings shown are maximum

(5) Maximum allowable rating by US NEC. Exact size must be chosen for each installation.

(6) Motor Circuit Protector - instantaneous trip circuit breaker. For US NEC minimum size is 125% of motor FLA. Ratings shown are maximum

480 Volt AC Input Protection Devices, Frames 1 - 6

[illegible]

⁽¹⁾ The temperature rating listed for frame size 1-4 drives is for NEMA open types only. The adhesive tape label must be removed in order to operate at this temperature, otherwise the ambient operating temperature of these drives is 40°C.

(2) UL Type 12/IP54 (flange mount) heatsink ambient temperature rating is 40° C/ambient of unprotected drive portion (inside enclosure) is 55° C. The ambient temperature for the UL Type 12/IP54 standalone drives is 40° C.

(3) Minimum protection device size is the lowest rated device that supplies maximum protection without nuisance tripping.

(4) Maximum protection device size is the highest rated device that supplies drive protection. For US NEC, minimum size is 125% of motor FLA. Ratings shown are maximum.

(5) Circuit Breaker - inverse time breaker. For US NEC, minimum size is 125% of motor FLA. Ratings shown are maximum.

(6) Maximum allowable rating by US NEC. Exact size must be chosen for each installation.

(7) Motor Circuit Protector - instantaneous trip circuit breaker. For US NEC minimum size is 125% of motor FLA. Ratings shown are maximum. Maximum allowable rating by US NEC. Exact size must be chosen for each installation.

(8) Bulletin 140M with adjustable current range should have the current trip set to the minimum range that the device will not trip.

(9) Manual Self-Protected (Type E) Combination Motor Controller, UL listed for 208 Wye or Delta, 240 Wye or Delta, 480Y/277 or 600Y/347. Not UL listed for use on 480V or 600V Delta/Delta systems.

⁽¹⁰⁾ The AIC ratings of the Bulletin 140M Motor Protector may vary. See publication 140M-SG001.

480 Volt AC Input Protection Devices, Frames 9 - 11

| Drive Catalog Number | HP Rating Frame | HP Rating ND | PWM Freq. kHz | Temp. °C | Input Ratings Amps | Output Amps | | | Dual Element Time Delay Fuse | | Non-Time Delay Fuse | | Circuit Breaker ⁽³⁾ Max. ⁽⁴⁾ | Motor Circuit Protector ⁽⁵⁾ Max. | Watts Loss |
|----------------------------|-----------------------|--------------------|---------------------|-------------|--------------------------|-------------|--------|--------|---------------------------------|-------------------------------------|------------------------------------|--------------------------------------|----------------------------------------------------------|------------------------------------------------------|---------------|
| | | | | | | Cont. | 1 Min. | 3 Sec. | Min. ⁽¹⁾ | Max. ⁽²⁾ | Min. ⁽¹⁾ | Max. ⁽²⁾ | | | |
| 20DD261 | 9 | 200 | - | 2 | 40 | 252 | 261 | 287 | 410 | 350 | 350 | 700 | 700 | 400 | 2700 |
| | | - | 150 | 2 | 40 | 207 | 205 | 308 | 410 | 275 | 275 | 600 | 600 | 300 | 2700 |
| 20DD300 | 9 | 250 | - | 2 | 40 | 290 | 300 | 330 | 450 | 400 | 400 | 900 | 900 | 400 | 3100 |
| | | - | 200 | 2 | 40 | 247 | 245 | 368 | 490 | 350 | 350 | 700 | 700 | 400 | 3100 |
| 20DD385 | 10 | 300 | - | 2 | 40 | 372 | 385 | 424 | 600 | 500 | 500 | 1100 | 1100 | 600 | 4320 |
| | | - | 250 | 2 | 40 | 302 | 300 | 450 | 600 | 400 | 400 | 900 | 900 | 400 | 4320 |
| 20DD460 | 10 | 350 | - | 2 | 40 | 444 | 460 | 506 | 770 | 600 | 600 | 1300 | 1300 | 600 | 5335 |
| | | - | 300 | 2 | 40 | 338 | 385 | 578 | 770 | 500 | 500 | 1100 | 1100 | 600 | 5335 |
| 20DD500 | 10 | 450 | - | 2 | 40 | 483 | 500 | 550 | 750 | 650 | 650 | 1500 | 1500 | 700 | 5921 |
| | | - | 350 | 2 | 40 | 423 | 420 | 630 | 840 | 550 | 550 | 1200 | 1200 | 600 | 5921 |
| 20DD590 | 11 | 500 | - | 2 | 40 | 570 | 590 | 649 | 956 | 750 (1 per phs) 375 (2 per phs) | 750 (1 per phs) 375 (2 per phs) | 1700 (1 per phs) 850 (2 per phs) | 1700 | 800 | 6620 |
| | | - | 450 | 2 | 40 | 524 | 520 | 780 | 956 | 1100 (1 per phs) 350 (2 per phs) | 700 (1 per phs) 350 (2 per phs) | 1500 (1 per phs) 750 (2 per phs) | 1500 | 700 | 6620 |
| 20DD650 | 11 | 500 | - | 2 | 40 | 628 | 650 | 715 | 1062 | 850 (1 per phs) 425 (2 per phs) | 850 (1 per phs) 425 (2 per phs) | 1900 (1 per phs) 950 (2 per phs) | 1900 | 800 | 7538 |
| | | - | 500 | 2 | 40 | 594 | 590 | 885 | 1062 | 1300 (1 per phs) 375 (2 per phs) | 750 (1 per phs) 375 (2 per phs) | 1700 (1 per phs) 850 (2 per phs) | 1700 | 800 | 7538 |
| 20DD730 | 11 | 600 | - | 2 | 40 | 705 | 730 | 803 | 1095 | 900 (1 per phs) 450 (2 per phs) | 900 (1 per phs) 450 (2 per phs) | 2100 (1 per phs) 1050 (2 per phs) | 2100 | 1000 | 8312 |
| | | - | 500 | 2 | 40 | 655 | 650 | 975 | 1170 | 850 (1 per phs) 425 (2 per phs) | 850 (1 per phs) 425 (2 per phs) | 1900 (1 per phs) 950 (2 per phs) | 1900 | 800 | 8312 |

⁽¹⁾ Minimum protection device size is the lowest rated device that supplies maximum protection without nuisance tripping.

⁽²⁾ Maximum protection device size is the highest rated device that supplies drive protection. For US NEC, minimum size is 125% of motor FLA. Ratings shown are maximum.

⁽³⁾ Circuit Breaker - inverse time breaker. For US NEC, minimum size is 125% of motor FLA. Ratings shown are maximum

⁽⁴⁾ Maximum allowable rating by US NEC. Exact size must be chosen for each installation.

⁽⁵⁾ Motor Circuit Protector - instantaneous trip circuit breaker. For US NEC minimum size is 125% of motor FLA. Ratings shown are maximum

480 Volt AC Input Protection Devices, Frames 12 & 13

| Drive Catalog Number | HP Rating ND | Pulse HD | PWM Freq. kHz | Temp. °C | Input Ratings | | Output Amps | | Dual Element Time Delay Fuse | | Non-Time Delay Fuse | | Circuit Breaker ⁽⁴⁾ Max. ⁽⁵⁾ | Motor Circuit Protector ⁽⁶⁾ Max. | Watts Loss |
|----------------------------|--------------------|-------------|---------------------|-------------|------------------|--------|-------------|--------|------------------------------|---------------------|---------------------|---------------------|----------------------------------------------------------|---------------------------------------------------|---------------|
| | | | | | Amps | 3 Sec. | Cont. | 1 Min. | Min. ⁽¹⁾ | Max. ⁽³⁾ | Min. ⁽¹⁾ | Max. ⁽³⁾ | | | |
| 20DD820 | 12 | 700 | - | 2 | 40 | 1230 | 820 | 902 | 1000 (1 per phs) | 1800 (1 per phs) | 1000 (1 per phs) | 2400 (1 per phs) | 2400 | 1200 | 9201 |
| | - | - | 600 | 2 | 40 | 1314 | 730 | 1095 | 900 (1 per phs) | 1600 (1 per phs) | 900 (1 per phs) | 2100 (1 per phs) | 2100 | 1200 | 9201 |
| 20DD920 | 12 | 800 | - | 2 | 40 | 1380 | 920 | 1012 | 450 (2 per phs) | 800 (2 per phs) | 450 (2 per phs) | 1050 (2 per phs) | 2600 | 1200 | 10670 |
| | - | - | 700 | 2 | 40 | 1476 | 820 | 1230 | 1200 (1 per phs) | 2000 (1 per phs) | 1200 (1 per phs) | 2600 (1 per phs) | 2600 | 1200 | 10670 |
| 20DD1K0 | 12 | 900 | - | 2 | 40 | 1555 | 1030 | 1133 | 600 (2 per phs) | 1000 (2 per phs) | 600 (2 per phs) | 1300 (2 per phs) | 2400 | 1200 | 10670 |
| | - | - | 800 | 2 | 35 | 1600 | 920 | 1370 | 1100 (1 per phs) | 1800 (1 per phs) | 1100 (1 per phs) | 2400 (1 per phs) | 2400 | 1200 | 10670 |
| 20DD1K1 | 13 | 1000 | - | 2 | 40 | 1620 | 1150 | 1265 | 550 (2 per phs) | 900 (2 per phs) | 550 (2 per phs) | 1200 (2 per phs) | 3000 | 1300 | 11729 |
| | - | - | 900 | 2 | 40 | 1620 | 1030 | 1545 | 1300 (1 per phs) | 2200 (1 per phs) | 1300 (1 per phs) | 3000 (1 per phs) | 3000 | 1300 | 11729 |
| 20DD1K3 | 13 | 1200 | - | 2 | 40 | 2079 | 1300 | 1430 | 650 (2 per phs) | 1100 (2 per phs) | 650 (2 per phs) | 1500 (2 per phs) | 2600 | 1200 | 11729 |
| | - | - | 1000 | 2 | 40 | 2079 | 1150 | 1725 | 1200 (1 per phs) | 2000 (1 per phs) | 1200 (1 per phs) | 2600 (1 per phs) | 2600 | 1200 | 11729 |
| 20DD1K4 | 13 | 1250 | - | 2 | 40 | 2175 | 1450 | 1595 | 600 (2 per phs) | 1000 (2 per phs) | 600 (2 per phs) | 1300 (2 per phs) | 3000 | 1300 | 13801 |
| | - | - | 1000 | 2 | 40 | 2400 | 1200 | 1800 | 1300 (2) | 2300 (2) | 1300 (2) | 3000 (2) | 3000 | 1300 | 13801 |
| 20DD1K3 | 13 | 1200 | - | 2 | 40 | 2079 | 1300 | 1430 | 1400 (2) | 2500 (2) | 1400 (2) | 3400 (2) | 3400 | 1400 | 13801 |
| | - | - | 1000 | 2 | 40 | 2079 | 1150 | 1725 | 1400 (2) | 2500 (2) | 1400 (2) | 3400 (2) | 3400 | 1400 | 13801 |
| 20DD1K4 | 13 | 1250 | - | 2 | 40 | 2175 | 1450 | 1595 | 1600 (2) | 2900 (2) | 1600 (2) | 3800 (2) | 3800 | 1600 | 15077 |
| | - | - | 1000 | 2 | 40 | 2400 | 1200 | 1800 | 1500 (2) | 2700 (2) | 1500 (2) | 3500 (2) | 3500 | 1500 | 15077 |
| 20DD1K4 | 13 | 1250 | - | 2 | 40 | 2175 | 1450 | 1595 | 1800 (2) | 3000 (2) | 1800 (2) | 4200 (2) | 4200 | 1800 | 16511 |
| | - | - | 1000 | 2 | 40 | 2400 | 1200 | 1800 | 1800 (2) | 3000 (2) | 1800 (2) | 4200 (2) | 4200 | 1800 | 16511 |

⁽¹⁾ Minimum protection device size is the lowest rated device that supplies maximum protection without nuisance tripping.

⁽²⁾ Fuses and disconnect are supplied with AC input NEMA Type 1 drives.

⁽³⁾ Maximum protection device size is the highest rated device that supplies drive protection. For US NEC, minimum size is 125% of motor FLA. Ratings shown are maximum.

⁽⁴⁾ Circuit Breaker - inverse time breaker. For US NEC, minimum size is 125% of motor FLA. Ratings shown are maximum

⁽⁵⁾ Maximum allowable rating by US NEC. Exact size must be chosen for each installation.

⁽⁶⁾ Motor Circuit Protector - instantaneous trip circuit breaker. For US NEC minimum size is 125% of motor FLA. Ratings shown are maximum

600 Volt AC Input Protection Devices, Frames 1 - 6

| Drive Catalog Number | HP Rating | | PWM Freq. | Temp. ⁽¹⁾ | Input Ratings | | Output Amps | | Dual Element Time Delay Fuse | | Non-Time Delay Fuse | | Circuit Breaker ⁽⁵⁾ | Motor Circuit Protector ⁽⁷⁾ | 140M Motor Starter with Adjustable Current Range ⁽⁸⁾⁽⁹⁾ | | Watts Loss | | |
|----------------------|-----------|-----|-----------|----------------------|-------------------|------|-------------|--------|------------------------------|---------------------|---------------------|---------------------|--------------------------------|----------------------------------------|--------------------------------------------------------------------|---------------------|------------|---------------------|-------------------------------------------|
| | ND | HD | | | Amps | kVA | Cont. | 1 Min. | 3 Sec. | Min. ⁽³⁾ | Max. ⁽⁴⁾ | Min. ⁽³⁾ | | | Max. ⁽⁴⁾ | Max. ⁽⁶⁾ | | Max. ⁽⁶⁾ | Available Catalog Numbers ⁽¹⁰⁾ |
| 20DE1P7 | 1 | 1 | 0.75 | 4 | 50 | 1.3 | 1.4 | 1.7 | 2 | 2.6 | 2 | 4 | 2 | 6 | 15 | 3 | M-C2E-B16 | — | — |
| 20DE2P7 | 1 | 2 | 1.5 | 4 | 50 | 2.1 | 2.1 | 2.7 | 3.6 | 4.8 | 3 | 6 | 3 | 10 | 15 | 3 | M-C2E-B25 | — | — |
| 20DE3P9 | 1 | 3 | 2 | 4 | 50 | 3.0 | 3.1 | 3.9 | 4.3 | 5.9 | 6 | 9 | 6 | 15 | 15 | 7 | M-C2E-B40 | M-D8E-B40 | — |
| 20DE6P1 | 1 | 5 | 3 | 4 | 50 | 5.3 | 5.5 | 6.1 | 6.7 | 9.2 | 9 | 12 | 9 | 20 | 20 | 15 | M-C2E-B63 | M-D8E-B63 | — |
| 20DE9P0 | 1 | 7.5 | 5 | 4 | 50 | 7.8 | 8.1 | 9 | 9.9 | 13.5 | 10 | 20 | 10 | 35 | 30 | 15 | M-C2E-C10 | M-D8E-C10 | — |
| 20DE011 | 1 | 10 | 7.5 | 4 | 50 | 9.9 | 10.2 | 11 | 13.5 | 18 | 15 | 25 | 15 | 40 | 40 | 15 | M-C2E-C10 | M-D8E-C10 | — |
| 20DE017 | 1 | 15 | 10 | 4 | 50 | 15.4 | 16.0 | 17 | 18.7 | 25.5 | 20 | 40 | 20 | 60 | 50 | 20 | M-C2E-C16 | M-D8E-C16 | — |
| 20DE022 | 2 | 20 | 15 | 4 | 50 | 20.2 | 21.0 | 22 | 25.5 | 34 | 30 | 50 | 30 | 80 | 80 | 30 | M-C2E-C25 | M-D8E-C25 | M-CMN-2500 |
| 20DE027 | 2 | 25 | 20 | 4 | 50 | 24.8 | 25.7 | 27 | 33 | 44 | 35 | 60 | 35 | 100 | 100 | 50 | — | — | M-CMN-2500 |
| 20DE032 | 3 | 30 | 25 | 4 | 50 | 29.4 | 30.5 | 32 | 40.5 | 54 | 40 | 70 | 40 | 125 | 125 | 50 | — | — | M-CMN-2500 |
| 20DE041 | 3 | 40 | 30 | 4 | 50 | 37.6 | 39.1 | 41 | 48 | 64 | 50 | 90 | 50 | 150 | 150 | 100 | — | — | M-CMN-4000 |
| 20DE052 | 3 | 50 | 40 | 4 | 50 | 47.7 | 49.6 | 52 | 61.5 | 82 | 60 | 110 | 60 | 200 | 200 | 100 | — | — | M-CMN-4000 |
| 20DE062 | 4 | 60 | 50 | 2 | 45 | 58.2 | 60.5 | 62 | 78 | 104 | 80 | 125 | 80 | 225 | 225 | 100 | — | — | M-CMN-6300 |
| 20DE077 | 5 | 75 | — | 2 | 45 | 72.3 | 75.1 | 77 | 85 | 116 | 90 | 150 | 90 | 300 | 300 | 100 | — | — | M-CMN-6300 |
| | | — | 60 | 2 | 50 ⁽²⁾ | 58.2 | 60.5 | 63 | 94 | 126 | 90 | 125 | 90 | 250 | 250 | 100 | — | — | M-CMN-6300 |
| 20DE089 | 5 | 100 | — | 2 | 50 ⁽²⁾ | 92.9 | 96.6 | 99 | 109 | 126 | 125 | 200 | 125 | 375 | 375 | 150 | — | — | — |
| | | — | 75 | 2 | 50 ⁽²⁾ | 72.3 | 75.1 | 77 | 116 | 138 | 100 | 175 | 100 | 300 | 300 | 100 | — | — | M-CMN-9000 |
| 20DE125 | 6 | 125 | — | 2 | 50 ⁽²⁾ | 117 | 121.6 | 125 | 138 | 188 | 150 | 250 | 150 | 375 | 375 | 250 | — | — | — |
| | | — | 100 | 2 | 50 ⁽²⁾ | 93 | 96.6 | 99 | 149 | 198 | 125 | 200 | 125 | 375 | 375 | 150 | — | — | — |
| 20DE144 | 6 | 150 | — | 2 | 50 ⁽²⁾ | 135 | 140.5 | 144 | 158 | 216 | 175 | 300 | 175 | 400 | 400 | 250 | — | — | — |
| | | — | 125 | 2 | 40 ⁽²⁾ | 117 | 121.6 | 125 | 188 | 250 | 150 | 275 | 150 | 375 | 375 | 250 | — | — | — |

(1) The temperature rating listed for frame size 1-4 drives is for NEMA open types only. The adhesive tape label must be removed in order to operate at this temperature, otherwise the ambient operating temperature of these drives is 40°C.

(2) UL Type 12/IP54 (flange mount) heatsink ambient temperature rating is 40° C/ambient of unprotected drive portion (inside enclosure) is 55° C. The ambient temperature for the UL Type 12/IP54 standalone drives is 40° C.

(3) Minimum protection device size is the lowest rated device that supplies maximum protection without nuisance tripping.

(4) Maximum protection device size is the highest rated device that supplies drive protection. For US NEC, minimum size is 125% of motor FLA. Ratings shown are maximum.

(5) Circuit Breaker - inverse time breaker. For US NEC, minimum size is 125% of motor FLA. Ratings shown are maximum.

(6) Maximum allowable rating by US NEC. Exact size must be chosen for each installation.

(7) Motor Circuit Protector - instantaneous trip circuit breaker. For US NEC minimum size is 125% of motor FLA. Ratings shown are maximum.

(8) Bulletin 140M with adjustable current range should have the current trip set to the minimum range that the device will not trip.

(9) Manual Self-Protected (Type E) Combination Motor Controller, UL listed for 208 Wye or Delta, 240 Wye or Delta, 480Y/277 or 600Y/347. Not UL listed for use on 480V or 600V Delta/Delta systems.

(10) The AIC ratings of the Bulletin 140M Motor Protector may vary. See publication 140M-SG001.

600 Volt AC Input Protection Devices, Frames 9 - 11

| Drive Catalog Number | HP Rating ND | HP Rating HD | PWM Freq. kHz | Temp. °C | Input Ratings Amps | Output Amps | | | Dual Element Time Delay Fuse | | Non-Time Delay Fuse | | Circuit Breaker (3) Max (4) | Motor Circuit Protector (5) Max. | Watts Loss |
|----------------------------|--------------------|--------------------|---------------------|-------------|--------------------------|-------------|--------|--------|------------------------------------|-------------------------------------|------------------------------------|-------------------------------------|-----------------------------------|----------------------------------------|---------------|
| | | | | | | Cont. | 1 Min. | 3 Sec. | Min. (1) | Max. (2) | Min. (1) | Max. (2) | | | |
| 20DE170 | 9 | 150 | 2 | 40 | 164 | 170 | 187 | 245 | 225 | 350 | 225 | 500 | 500 | 250 | — |
| | — | — | 150 | 2 | 40 | 139 | 144 | 216 | 200 | 300 | 200 | 400 | 400 | 200 | — |
| 20DE208 | 9 | 200 | 2 | 35 | 201 | 208 | 230 | 289 | 300 | 450 | 300 | 600 | 600 | 350 | — |
| | — | — | 150 | 2 | 40 | 164 | 170 | 250 | 225 | 350 | 225 | 500 | 500 | 250 | — |
| 20DE261 | 10 | 250 | 2 | 40 | 252 | 261 | 287 | 375 | 350 | 550 | 350 | 700 | 700 | 350 | 4206 |
| | — | — | 200 | 2 | 40 | 201 | 208 | 312 | 300 | 450 | 300 | 600 | 600 | 300 | 4206 |
| 20DE325 | 10 | 350 | 2 | 40 | 314 | 325 | 358 | 470 | 400 | 700 | 400 | 900 | 900 | 450 | 4751 |
| | — | — | 250 | 2 | 40 | 252 | 261 | 392 | 350 | 550 | 350 | 700 | 700 | 400 | 4751 |
| 20DE385 | 10 | 400 | 2 | 40 | 372 | 385 | 424 | 585 | 500 | 850 | 500 | 1100 | 1100 | 500 | 5527 |
| | — | — | 350 | 2 | 40 | 314 | 325 | 488 | 400 | 700 | 400 | 900 | 900 | 450 | 5527 |
| 20DE416 | 10 | 450 | 2 | 35 | 402 | 416 | 458 | 585 | 550 | 900 | 550 | 1200 | 1200 | 550 | 5622 |
| | — | — | 350 | 2 | 40 | 314 | 325 | 488 | 400 | 700 | 400 | 900 | 900 | 450 | 5622 |
| 20DE460 | 11 | 500 | 2 | 40 | 444 | 460 | 506 | 693 | 600 | 1000 | 600 | 1300 | 1300 | 600 | 6345 |
| | — | — | 400 | 2 | 40 | 372 | 385 | 578 | 500 | 800 | 500 | 1100 | 1100 | 500 | 6345 |
| 20DE502 | 11 | 500 | 2 | 40 | 485 | 502 | 552 | 828 | 650 | 1100 | 650 | 1400 | 1400 | 650 | 6925 |
| | — | — | 500 | 2 | 40 | 444 | 460 | 690 | 600 | 1000 | 600 | 1300 | 1300 | 600 | 6925 |
| 20DE590 | 11 | 600 | 2 | 35 | 570 | 590 | 649 | 885 | 800 (1 per phs) 400 (2 per phs) | 1300 (1 per phs) 650 (2 per phs) | 800 (1 per phs) 400 (2 per phs) | 1700 (1 per phs) 850 (2 per phs) | 1700 | 800 | 7539 |
| | — | — | 500 | 2 | 35 | 485 | 502 | 753 | 650 (1 per phs) 325 (2 per phs) | 1100 (1 per phs) 550 (2 per phs) | 650 (1 per phs) 325 (2 per phs) | 1400 (1 per phs) 700 (2 per phs) | 1400 | 700 | 7539 |

(1) Minimum protection device size is the lowest rated device that supplies maximum protection without nuisance tripping.

(2) Maximum protection device size is the highest rated device that supplies drive protection. For US NEC, minimum size is 125% of motor FLA. Ratings shown are maximum.

(3) Circuit Breaker - inverse time breaker. For US NEC, minimum size is 125% of motor FLA. Ratings shown are maximum

(4) Maximum allowable rating by US NEC. Exact size must be chosen for each installation.

(5) Motor Circuit Protector - instantaneous trip circuit breaker. For US NEC minimum size is 125% of motor FLA. Ratings shown are maximum

600 Volt AC Input Protection Devices, Frames 12 & 13

| Drive Catalog Number | HP Rating ND | HP Rating LD | HP Rating HD | PWM Freq. kHz | Temp. °C | Input Ratings Amps | Output Amps Cont. 1 Min. 3 Sec. | Dual Element Time Delay Fuse Min. (2) Max. (4) | Non-Time Delay Fuse Min. (2) Max. (4) | Circuit Breaker (5) Max (6) | Motor Circuit Protector (7) Max. | Watts Loss Watts |
|----------------------------|--------------------|--------------------|--------------------|---------------------|-------------|--------------------------|------------------------------------|----------------------------------------------------------------------------|-----------------------------------------------------------------------------|-----------------------------------|----------------------------------------|------------------------|
| 20DE650 | 12 | 700 | — | 2 | 40 | 628 | 650 715 1062 | 800 (1 per phs) 400 (2 per phs) 1400 (1 per phs) 700 (2 per phs) | 800 (1 per phs) 400 (2 per phs) 1900 (1 per phs) 950 (2 per phs) | 1900 | 900 | 9502 |
| | — | 650 | 650 | 2 | 40 | 570 | 885 1062 | 750 (1 per phs) 375 (2 per phs) 1300 (1 per phs) 650 (2 per phs) | 750 (1 per phs) 375 (2 per phs) 1700 (1 per phs) 850 (2 per phs) | 1700 | 800 | 9502 |
| 20DE750 | 12 | 800 | — | 2 | 40 | 724 | 825 1170 | 950 (1 per phs) 475 (2 per phs) 1600 (1 per phs) 800 (2 per phs) | 950 (1 per phs) 475 (2 per phs) 2200 (1 per phs) 1100 (2 per phs) | 2200 | 1000 | 10570 |
| | — | 700 | 700 | 2 | 40 | 628 | 975 1170 | 800 (1 per phs) 400 (2 per phs) 1400 (1 per phs) 700 (2 per phs) | 800 (1 per phs) 400 (2 per phs) 1900 (1 per phs) 950 (2 per phs) | 1900 | 900 | 10570 |
| 20DE820 (1) | 12 | 900 | — | 2 | 35 | 792 | 902 1170 | 1000 (1 per phs) 500 (2 per phs) 1800 (1 per phs) 900 (2 per phs) | 1000 (1 per phs) 500 (2 per phs) 2400 (1 per phs) 1200 (2 per phs) | 2400 | 1100 | 11082 |
| | — | 700 | 700 | 2 | 35 | 628 | 975 1170 | 800 (1 per phs) 400 (2 per phs) 1400 (1 per phs) 700 (2 per phs) | 800 (1 per phs) 400 (2 per phs) 1900 (1 per phs) 950 (2 per phs) | 1900 | 900 | 11082 |
| 20DE920 | 13 | 1000 | — | 2 | 40 | 888 | 920 1012 1380 | 1200 (3) 1200 (3) 2000 (3) | 1200 (3) 1200 (3) 2700 (3) | 2700 | 1200 | 12690 |
| | — | 900 | 900 | 2 | 40 | 792 | 820 1230 1410 | 1000 (3) 1000 (3) 1800 (3) | 1000 (3) 1000 (3) 2400 (3) | 2400 | 1100 | 12690 |
| 20DE1K0 | 13 | 1100 | — | 2 | 40 | 994 | 1030 1133 1545 | 1300 (3) 1300 (3) 2200 (3) | 1300 (3) 1300 (3) 3000 (3) | 3000 | 1300 | 15907 |
| | — | 1000 | 1000 | 2 | 40 | 888 | 920 1380 1755 | 1200 (3) 1200 (3) 2000 (3) | 1200 (3) 1200 (3) 2700 (3) | 2700 | 1200 | 15907 |
| 20DE1K1 | 13 | 1300 | — | 2 | 35 | 1139 | 1180 1298 1755 | 1500 (3) 1500 (3) 2600 (3) | 1500 (3) 1500 (3) 3500 (3) | 3500 | 1500 | 17306 |
| | — | 1100 | 1100 | 2 | 35 | 994 | 1030 1463 1755 | 1300 (3) 1300 (3) 2200 (3) | 1300 (3) 1300 (3) 3000 (3) | 3000 | 1300 | 17306 |

(1) 20DE820 drives (ND) are only capable of producing 95% of starting torque under 10 Hz.

(2) Minimum protection device size is the lowest rated device that supplies maximum protection without nuisance tripping.

(3) Fuses and disconnect are supplied with AC input NEMA Type 1 drives.

(4) Maximum protection device size is the highest rated device that supplies drive protection. For US NEC, minimum size is 125% of motor FLA. Ratings shown are maximum.

(5) Circuit Breaker - inverse time breaker. For US NEC, minimum size is 125% of motor FLA. Ratings shown are maximum

(6) Maximum allowable rating by US NEC. Exact size must be chosen for each installation.

(7) Motor Circuit Protector - instantaneous trip circuit breaker. For US NEC minimum size is 125% of motor FLA. Ratings shown are maximum

690 Volt AC Input Protection Devices, Frames 5 & 6

| Drive Catalog Number | kW Rating ND | PWM Freq. kHz | Temp. ⁽¹⁾ °C | Input Ratings | | | Output Amps | | Dual Element Time Delay Fuse | | Non-Time Delay Fuse | | Circuit Breaker ⁽⁴⁾ Max. ⁽⁵⁾ | Motor Circuit Protector ⁽⁶⁾ Max. ⁽⁵⁾ | Watts Loss |
|----------------------------|--------------------|---------------------|----------------------------|---------------|------|-------|-------------|--------|---------------------------------|---------------------|------------------------|---------------------|----------------------------------------------------------|------------------------------------------------------------------|---------------|
| | | | | Amps | kVA | Cont. | 1 Min. | 3 Sec. | Min. ⁽²⁾ | Max. ⁽³⁾ | Min. ⁽²⁾ | Max. ⁽³⁾ | | | |
| | | | | HD | ND | 4 | 5 | 78 | 60 | 110 | 60 | 175 | | | |
| 20DF052 | 5 | 45 | 50 | — | 46.9 | 59.5 | 52 | 57 | 78 | 90 | 50 | 150 | — | — | — |
| 20DF060 | 5 | 55 | 50 | — | 40.1 | 48.0 | 46 | 69 | 92 | 125 | 80 | 225 | — | — | — |
| 20DF082 | 5 | 75 | 50 | — | 57.7 | 68.9 | 60 | 66 | 90 | 110 | 60 | 175 | — | — | — |
| 20DF098 | 5 | 90 | 50 | — | 46.9 | 59.5 | 52 | 78 | 104 | 200 | 100 | 375 | — | — | — |
| 20DF119 | 6 | 110 | 50 | — | 79.0 | 94.4 | 82 | 90 | 123 | 125 | 80 | 225 | — | — | — |
| 20DF142 | 6 | 132 | 50 | — | 57.7 | 68.9 | 60 | 90 | 120 | 200 | 100 | 375 | — | — | — |
| | | | | | 113 | 113 | 98 | 108 | 127 | 200 | 125 | 375 | — | — | — |
| | | | | | 94.7 | 94.7 | 82 | 123 | 140 | 200 | 100 | 375 | — | — | — |
| | | | | | 79.0 | 94.4 | 82 | 131 | 179 | 250 | 150 | 400 | — | — | — |
| | | | | | 115 | 138 | 119 | 147 | 196 | 200 | 125 | 375 | — | — | — |
| | | | | | 92.9 | 113 | 98 | 156 | 213 | 300 | 175 | 450 | — | — | — |
| | | | | | 139 | 165.9 | 142 | 179 | 238 | 250 | 150 | 400 | — | — | — |
| | | | | | 115 | 137 | 119 | | | | | | — | — | — |

(1) UL Type 12/IP54 (flange mount) heatsink ambient temperature rating is 40° C/ambient of unprotected drive portion (inside enclosure) is 55° C. The ambient temperature for the UL Type 12/IP54 standalone drives is 40° C.

(2) Minimum protection device size is the lowest rated device that supplies maximum protection without nuisance tripping.

(3) Maximum protection device size is the highest rated device that supplies drive protection. For US NEC, minimum size is 125% of motor FLA. Ratings shown are maximum.

(4) Circuit Breaker - inverse time breaker. For US NEC, minimum size is 125% of motor FLA. Ratings shown are maximum.

(5) Maximum allowable rating by US NEC. Exact size must be chosen for each installation.

(6) Motor Circuit Protector - instantaneous trip circuit breaker. For US NEC minimum size is 125% of motor FLA. Ratings shown are maximum.

690 Volt AC Input Protection Devices, Frames 9 - 11

| Drive Catalog Number | kW Rating ND | kW Rating HD | PWM Freq. kHz | Temp. °C | Input Ratings Amps | Output Amps | | Dual Element Time Delay Fuse | | Non-Time Delay Fuse | | Circuit Breaker ⁽³⁾ Max. ⁽⁴⁾ | Motor Circuit Protector ⁽⁵⁾ Max. | Watts Loss Watts | | |
|----------------------|-----------------|-----------------|------------------|-------------|-----------------------|-------------|--------|------------------------------|------------------------------------|-------------------------------------|-------------------------------------|-------------------------------------------------------|------------------------------------------------|---------------------|---------------------|------|
| | | | | | | Cont. | 1 Min. | 3 Sec. | Min. ⁽¹⁾ | Max. ⁽²⁾ | Min. ⁽¹⁾ | | | | Max. ⁽²⁾ | |
| 20DF170 | 9 | 160 | — | 2 | 40 | 171 | 170 | 187 | 245 | 225 | 350 | 225 | 550 | 500 | 250 | — |
| 20DF208 | 9 | — | 132 | 2 | 40 | 145 | 144 | 216 | 245 | 200 | 300 | 200 | 500 | 400 | 200 | — |
| | | 200 | — | 2 | 35 | 210 | 208 | 230 | 289 | 300 | 450 | 300 | 600 | 600 | 350 | — |
| 20DF261 | 10 | — | 160 | 2 | 40 | 171 | 170 | 250 | 289 | 225 | 350 | 225 | 500 | 500 | 250 | — |
| | | 250 | — | 2 | 40 | 263 | 261 | 287 | 375 | 350 | 550 | 350 | 700 | 700 | 350 | 4206 |
| 20DF325 | 10 | — | 200 | 2 | 40 | 210 | 208 | 312 | 375 | 300 | 450 | 300 | 600 | 600 | 300 | 4206 |
| | | 315 | — | 2 | 40 | 327 | 325 | 358 | 470 | 425 | 700 | 425 | 900 | 900 | 450 | 4751 |
| 20DF385 | 10 | — | 250 | 2 | 40 | 263 | 261 | 392 | 470 | 350 | 550 | 350 | 700 | 700 | 350 | 4751 |
| | | 355 | — | 2 | 40 | 388 | 385 | 424 | 585 | 500 | 850 | 500 | 1100 | 1100 | 500 | 5527 |
| 20DF416 | 10 | — | 315 | 2 | 40 | 327 | 325 | 488 | 585 | 450 | 700 | 450 | 900 | 900 | 450 | 5527 |
| | | 400 | — | 2 | 35 | 419 | 416 | 458 | 585 | 550 | 900 | 550 | 1200 | 1200 | 550 | 5622 |
| 20DF460 | 11 | — | 315 | 2 | 40 | 327 | 325 | 488 | 585 | 450 | 700 | 450 | 900 | 900 | 450 | 5622 |
| | | 450 | — | 2 | 40 | 463 | 460 | 506 | 693 | 600 | 1000 | 600 | 1300 | 1300 | 600 | 6345 |
| 20DF502 | 11 | — | 355 | 2 | 40 | 388 | 385 | 578 | 693 | 500 | 800 | 500 | 1500 | 1500 | 500 | 6345 |
| | | 500 | — | 2 | 40 | 506 | 502 | 552 | 828 | 700 | 1200 | 700 | 1400 | 1400 | 650 | 6925 |
| 20DF590 | 11 | — | 400 | 2 | 40 | 463 | 460 | 690 | 828 | 600 | 1000 | 600 | 1300 | 1300 | 600 | 6925 |
| | | 560 | — | 2 | 35 | 594 | 590 | 649 | 885 | 800 (1 per phs) 400 (2 per phs) | 1300 (1 per phs) 650 (2 per phs) | 800 (1 per phs) 400 (2 per phs) | 1700 (1 per phs) 850 (2 per phs) | 1700 | 800 | 7539 |
| | — | 500 | 2 | 35 | 506 | 502 | 753 | 904 | 650 (1 per phs) 325 (2 per phs) | 1100 (1 per phs) 550 (2 per phs) | 650 (1 per phs) 325 (2 per phs) | 1400 (1 per phs) 700 (2 per phs) | 1400 | 650 | 7539 | |

⁽¹⁾ Minimum protection device size is the lowest rated device that supplies maximum protection without nuisance tripping.

⁽²⁾ Maximum protection device size is the highest rated device that supplies drive protection. For US NEC, minimum size is 125% of motor FLA. Ratings shown are maximum.

⁽³⁾ Circuit Breaker - inverse time breaker. For US NEC, minimum size is 125% of motor FLA. Ratings shown are maximum

⁽⁴⁾ Maximum allowable rating by US NEC. Exact size must be chosen for each installation.

⁽⁵⁾ Motor Circuit Protector - instantaneous trip circuit breaker. For US NEC minimum size is 125% of motor FLA. Ratings shown are maximum

690 Volt AC Input Protection Devices, Frames 12 & 13

| Drive Catalog Number | kW Rating | | PWM Freq. kHz | Temp. °C | Input Ratings Amps | Output Amps | | Dual Element Time Delay Fuse | | Non-Time Delay Fuse | | Circuit Breaker ⁽⁵⁾ | Motor Circuit Protector ⁽⁷⁾ | Watts Loss |
|----------------------------|--------------|------|---------------------|-------------|--------------------------|-------------|--------|------------------------------|-------------------------------------|-------------------------------------|-------------------------------------|--------------------------------------|-------------------------------------------|---------------|
| | ND | HD | | | | Cont | 1 Min. | 3 Sec. | Min. ⁽²⁾ | Max. ⁽⁴⁾ | Min. ⁽²⁾ | Max. ⁽⁴⁾ | | |
| 20DF650 | 12 | 630 | — | 2 | 40 | 655 | 715 | 1062 | 850 (1 per phs) 425 (2 per phs) | 1400 (1 per phs) 700 (2 per phs) | 850 (1 per phs) 425 (2 per phs) | 1900 (1 per phs) 950 (2 per phs) | 850 | 9502 |
| | — | 560 | 2 | 40 | 594 | 590 | 885 | 1062 | 750 (1 per phs) 375 (2 per phs) | 1300 (1 per phs) 650 (2 per phs) | 750 (1 per phs) 375 (2 per phs) | 1700 (1 per phs) 850 (2 per phs) | 800 | 9502 |
| 20DF750 | 12 | 710 | — | 2 | 40 | 756 | 825 | 1170 | 950 (1 per phs) 475 (2 per phs) | 1600 (1 per phs) 800 (2 per phs) | 950 (1 per phs) 475 (2 per phs) | 2200 (1 per phs) 1100 (2 per phs) | 1000 | 10570 |
| | — | 630 | 2 | 40 | 655 | 650 | 975 | 1170 | 850 (1 per phs) 425 (2 per phs) | 1400 (1 per phs) 700 (2 per phs) | 850 (1 per phs) 425 (2 per phs) | 1900 (1 per phs) 950 (2 per phs) | 850 | 10570 |
| 20DF820 ⁽¹⁾ | 12 | 800 | — | 2 | 35 | 826 | 902 | 1170 | 1100 (1 per phs) 550 (2 per phs) | 1800 (1 per phs) 900 (2 per phs) | 1100 (1 per phs) 550 (2 per phs) | 2400 (1 per phs) 1200 (2 per phs) | 1100 | 11082 |
| | — | 630 | 2 | 35 | 655 | 650 | 975 | 1170 | 850 (1 per phs) 425 (2 per phs) | 1400 (1 per phs) 700 (2 per phs) | 850 (1 per phs) 425 (2 per phs) | 1900 (1 per phs) 950 (2 per phs) | 850 | 11082 |
| 20DF920 | 13 | 900 | — | 2 | 40 | 927 | 920 | 1012 | 1200 ⁽³⁾ | 1800 ⁽³⁾ | 1200 ⁽³⁾ | 2400 ⁽³⁾ | 1100 | 12690 |
| | — | 800 | 2 | 40 | 826 | 820 | 1230 | 1410 | 1100 ⁽³⁾ | 1800 ⁽³⁾ | 1100 ⁽³⁾ | 2400 ⁽³⁾ | 1100 | 12690 |
| 20DF1K0 | 13 | 1000 | — | 2 | 40 | 1038 | 1030 | 1133 | 1300 ⁽³⁾ | 2200 ⁽³⁾ | 1300 ⁽³⁾ | 3000 ⁽³⁾ | 1300 | 15907 |
| | — | 900 | 2 | 40 | 927 | 920 | 1380 | 1755 | 1200 ⁽³⁾ | 2000 ⁽³⁾ | 1200 ⁽³⁾ | 2700 ⁽³⁾ | 1200 | 15907 |
| 20DF1K1 | 13 | 1100 | — | 2 | 35 | 1189 | 1180 | 1298 | 1500 ⁽³⁾ | 2600 ⁽³⁾ | 1500 ⁽³⁾ | 3500 ⁽³⁾ | 1500 | 17306 |
| | — | 1000 | 2 | 35 | 1038 | 1030 | 1463 | 1755 | 1300 ⁽³⁾ | 2200 ⁽³⁾ | 1300 ⁽³⁾ | 3000 ⁽³⁾ | 1300 | 17306 |

(1) 20DF820 drives (ND) are only capable of producing 95% of starting torque under 10 Hz.

(2) Minimum protection device size is the lowest rated device that supplies maximum protection without nuisance tripping.

(3) Fuses and disconnect are supplied with AC input NEMA Type 1 drives.

(4) Maximum protection device size is the highest rated device that supplies drive protection. For US NEC, minimum size is 125% of motor FLA. Ratings shown are maximum.

(5) Circuit Breaker - inverse time breaker. For US NEC, minimum size is 125% of motor FLA. Ratings shown are maximum

(6) Maximum allowable rating by US NEC. Exact size must be chosen for each installation.

(7) Motor Circuit Protector - instantaneous trip circuit breaker. For US NEC minimum size is 125% of motor FLA. Ratings shown are maximum

325 Volt DC Input Protection Devices, Frames 1 - 6

| Drive Catalog Number | Frame | HP Rating | | PWM Freq. kHz | Temp. ⁽³⁾ °C | DC Input Ratings | | Output Amps ⁽⁴⁾ | | | Fuse | Non-Time Delay Fuse ⁽⁵⁾ |
|---------------------------|-------|-----------|-----|---------------|-------------------------|------------------|-----------|----------------------------|-----------|--|------|------------------------------------|
| | | ND | HD | | | Amps | Cont. | 1 Min. | 3 Sec. | | | |
| 20DB015 | 1 | 5 | 3 | 4 | 45 | 16 | 15.3 | 16.8 | 23.0 | | 30 | HSJ30 |
| 20DB022 | 1 | 7.5 | 5 | 4 | 45 | 23.3 | 22 | 24.2 | 33 | | 45 | HSJ45 |
| 20DB028 | 2 | 10 | 7.5 | 4 | 45 | 30 | 28 | 33 | 44 | | 60 | HSJ60 |
| 20DB042 | 3 | 15 | 10 | 4 | 45 | 45 | 42 | 46.2 | 63 | | 90 | HSJ90 |
| 20DB052 | 3 | 20 | 15 | 4 | 45 | 55 | 52 | 63 | 80 | | 100 | HSJ100 |
| 20DB070 | 4 | 25 | 20 | 4 | 45 | 75.3 | 70 | 78 | 105 | | 150 | HSJ150 |
| 20DB080 | 4 | 30 | 25 | 4 | 45 | 85.8 | 80 | 105 | 140 | | 175 | HSJ175 |
| 20DN104 ⁽¹⁾ | 5 | 40 | 30 | 4 | 45 | 114.1 | 104 (80) | 115 (120) | 175 (160) | | 225 | HSJ225 |
| 20DN130 ⁽¹⁾ | 5 | 50 | 40 | 4 | 45 | 142.6 | 130 (104) | 143 (156) | 175 (175) | | 250 | HSJ250 |
| 20DN154 ⁽¹⁾ | 6 | 60 | 50 | 4 | 45 | 169 | 154 (130) | 169 (195) | 231 (260) | | 300 | HSJ300 |
| 20DN192 ⁽¹⁾ | 6 | 75 | 60 | 4 | 45 | 210.6 | 192 (154) | 211 (231) | 288 (308) | | 400 | HSJ400 |
| 20DN260 ⁽¹⁾⁽²⁾ | 6 | 100 | 75 | 4 | 50 | 272.1 | 260 (205) | 286 (305) | 390 (410) | | 400 | HSJ400 |

(1) Catalog number corresponds to output amps for these drives. Drive must be programmed to lower voltage to obtain higher currents shown at right.

(2) Catalog number corresponds to drives with precharge only.

(3) The temperature rating listed for frame size 1-4 drives is for NEMA open types only. The adhesive tape label must be removed in order to operate at this temperature, otherwise the ambient operating temperature of these drives is 40°C.

(4) Frame 5 and 6 drives have dual current ratings; one for normal duty applications, and one for heavy duty applications (in parenthesis). The drive may be operated at either rating.

(5) The power source to Common Bus inverters must be derived from AC Voltages 600V or less, as defined in NFPA70: Art 430-18 (NEC). Battery supplies or MG sets are not included. The following devices were validated to break current of the derived power DC Bus; *Disconnects*: Allen-Bradley Bulletin No. 1494, 30 to 400 A; Bulletin No. 194, 30 to 400 A, or ABB: OESA, 600 & 800 A; OESL, all sizes. *Fuses*: Ferraz Shawmut Type HSJ, all sizes. For any other devices, please contact the factory.

540 Volt DC Input Protection Devices, Frames 1 - 6

| Drive Catalog Number | Frame | kW Rating | | PWM Freq. kHz | Temp. ⁽²⁾ °C | DC Input Ratings | | Output Amps | | | Fuse | Non-Time Delay Fuse ⁽³⁾ |
|------------------------|-------|-----------|------|---------------|-------------------------|------------------|-------|-------------|--------|------|------|------------------------------------|
| | | ND | HD | | | Amps | Cont. | 1 Min. | 3 Sec. | | | |
| 20DC3P5 | 1 | 1.5 | 1.1 | 4 | 50 | 3.7 | | 3.5 | 4.5 | 6.0 | 8 | JKS-8 |
| 20DC5P0 | 1 | 2.2 | 1.5 | 4 | 50 | 5.3 | | 5.0 | 5.5 | 7.5 | 10 | JKS-10 |
| 20DC8P7 | 1 | 4 | 3.0 | 4 | 50 | 9.3 | | 8.7 | 9.9 | 13.2 | 15 | HSJ15 |
| 20DC011 | 1 | 5.5 | 4 | 4 | 50 | 12.6 | | 11.5 | 13 | 17.4 | 20 | HSJ20 |
| 20DC015 | 1 | 7.5 | 5.5 | 4 | 50 | 16.8 | | 15.4 | 17.2 | 23.1 | 25 | HSJ25 |
| 20DC022 | 1 | 11 | 7.5 | 4 | 50 | 24 | | 22 | 24.2 | 33 | 40 | HSJ40 |
| 20DC030 | 2 | 15 | 11 | 4 | 50 | 33.2 | | 30 | 33 | 45 | 50 | HSJ50 |
| 20DC037 | 2 | 18.5 | 15 | 4 | 50 | 40.9 | | 37 | 45 | 60 | 70 | HSJ70 |
| 20DC043 | 3 | 22 | 18.5 | 4 | 50 | 47.5 | | 43 | 56 | 74 | 90 | HSJ90 |
| 20DC056 | 3 | 30 | 22 | 4 | 50 | 61.9 | | 56 | 64 | 86 | 100 | HSJ100 |
| 20DC072 | 3 | 37 | 30 | 4 | 50 | 80.5 | | 72 | 84 | 112 | 125 | HSJ125 |
| 20DC085 | 4 | 45 | 37 | 4 | 50 | 95.1 | | 85 | 108 | 144 | 150 | HSJ150 |
| 20DH105 ⁽¹⁾ | 5 | 55 | — | 4 | 50 | 120.2 | | 105 | 116 | 158 | 175 | HSJ175 |
| 20DH125 ⁽¹⁾ | 5 | — | 45 | 4 | 50 | 95.1 | | 85 | 128 | 170 | 175 | HSJ175 |
| | | 55 | — | 4 | 50 | 120.2 | | 125 | 138 | 163 | 200 | HSJ200 |
| 20DH140 ⁽¹⁾ | 5 | — | 45 | 4 | 50 | 95.1 | | 96 | 144 | 168 | 200 | HSJ200 |
| | | 75 | — | 4 | 50 | 159 | | 140 | 154 | 210 | 250 | HSJ250 |
| 20DH170 ⁽¹⁾ | 6 | — | 55 | 4 | 50 | 120.2 | | 105 | 158 | 210 | 250 | HSJ250 |
| | | 90 | — | 4 | 50 | 192 | | 170 | 187 | 255 | 350 | HSJ350 |
| 20DH205 ⁽¹⁾ | 6 | — | 75 | 4 | 50 | 159 | | 140 | 210 | 280 | 350 | HSJ350 |
| | | 110 | — | 4 | 40 | 226 | | 205 | 220 | 289 | 350 | HSJ350 |
| 20DH260 ⁽¹⁾ | 6 | — | 90 | 4 | 40 | 192 | | 170 | 255 | 313 | 350 | HSJ350 |
| | | 132 | — | 2 | 40 | 298 | | 260 | 286 | 390 | 400 | HSJ400 |
| | | — | 110 | 2 | 40 | 226 | | 205 | 305 | 410 | 400 | HSJ400 |

⁽¹⁾ Also applies to "P" voltage class. Fuses must be applied in the (+) leg and (-) leg of the DC Common Bus.

⁽²⁾ The temperature rating listed for frame size 1-4 drives is for NEMA open types only. The adhesive tape label must be removed in order to operate at this temperature, otherwise the ambient operating temperature of these drives is 40°C.

⁽³⁾ The power source to Common Bus inverters must be derived from AC voltages 600V or less, as defined in NFPA70: Art 430-18 (NEC). Battery supplies or MG sets are not included. The following devices were validated to break current of the derived power DC Bus: *Disconnects*: Allen-Bradley Bulletin No. 1494, 30 to 400 A; Bulletin No. 194, 30 to 400 A; or ABB: OESA, 600 & 800 A; OESL, all sizes; *Fuses*: Bussmann Type JKS, all sizes; Type 170M, Case Sizes 1, 2 and 3, or Ferraz Shawmut Type HSJ, all sizes. For any other devices, please contact the factory.

540 Volt DC Input Protection Devices, Frames 9 - 13

| Drive Catalog Number | Frame | kW Rating | | PWM Freq. | | Temp. °C | DC Input Ratings | | Output Amps | | | Fuse | Bussmann Style Fuse |
|----------------------|-------|-----------|-----|-----------|--|----------|------------------|--|-------------|--------|--------|-----------------|---------------------|
| | | ND | HD | kHz | | | Amps | | Cont. | 1 Min. | 3 Sec. | | |
| 20DH261 | 9 | 132 | - | 2 | | 40 | 307 | | 261 | 287 | 410 | 500 | 170M6608 |
| | | - | 110 | 2 | | 40 | 241 | | 205 | 308 | 410 | 500 | 170M6608 |
| 20DH300 | 9 | 160 | - | 2 | | 40 | 353 | | 300 | 330 | 450 | 630 | 170M6610 |
| | | - | 132 | 2 | | 40 | 288 | | 245 | 368 | 490 | 630 | 170M6610 |
| 20DH385 | 10 | 200 | - | 2 | | 40 | 453 | | 385 | 424 | 600 | 700 | 170M6611 |
| | | - | 160 | 2 | | 40 | 353 | | 300 | 450 | 600 | 700 | 170M6611 |
| 20DH460 | 10 | 250 | - | 2 | | 40 | 541 | | 460 | 506 | 770 | 900 | 170M6613 |
| | | - | 200 | 2 | | 40 | 453 | | 385 | 578 | 770 | 900 | 170M6613 |
| 20DH500 | 10 | 250 | - | 2 | | 40 | 589 | | 500 | 550 | 750 | 500 (2 per phs) | 170M6608 |
| | | - | 250 | 2 | | 40 | 494 | | 420 | 630 | 840 | 500 (2 per phs) | 170M6608 |
| 20DH590 | 11 | 315 | - | 2 | | 40 | 695 | | 590 | 649 | 956 | 550 (2 per phs) | 170M6609 |
| | | - | 250 | 2 | | 40 | 612 | | 520 | 780 | 956 | 550 (2 per phs) | 170M6609 |
| 20DH650 | 11 | 355 | - | 2 | | 40 | 765 | | 650 | 715 | 1062 | 630 (2 per phs) | 170M6610 |
| | | - | 315 | 2 | | 40 | 695 | | 590 | 885 | 1062 | 630 (2 per phs) | 170M6610 |
| 20DH730 | 11 | 400 | - | 2 | | 40 | 859 | | 730 | 803 | 1095 | 700 (2 per phs) | 170M6611 |
| | | - | 355 | 2 | | 40 | 765 | | 650 | 975 | 1170 | 700 (2 per phs) | 170M6611 |
| 20DH820 | 12 | 450 | - | 2 | | 40 | 965 | | 820 | 902 | 1230 | 700 (2 per phs) | 170M6611 |
| | | - | 400 | 2 | | 40 | 859 | | 730 | 1095 | 1314 | 700 (2 per phs) | 170M6611 |
| 20DH920 | 12 | 500 | - | 2 | | 40 | 1083 | | 920 | 1012 | 1380 | 550 (3 per phs) | 170M6609 |
| | | - | 450 | 2 | | 40 | 965 | | 820 | 1230 | 1476 | 550 (3 per phs) | 170M6609 |
| 20DH1K0 | 12 | 560 | - | 2 | | 40 | 1213 | | 1030 | 1133 | 1555 | 630 (3 per phs) | 170M6610 |
| | | - | 500 | 2 | | 35 | 1083 | | 920 | 1370 | 1600 | 630 (3 per phs) | 170M6610 |
| 20DH1K1 | 13 | 630 | - | 2 | | 40 | 1354 | | 1150 | 1265 | 1620 | 2400 | 170M7107 |
| | | - | 560 | 2 | | 40 | 1213 | | 1030 | 1545 | 1620 | 2400 | 170M7107 |
| 20DH1K3 | 13 | 710 | - | 2 | | 40 | 1530 | | 1300 | 1430 | 2079 | 2400 | 170M7107 |
| | | - | 630 | 2 | | 40 | 1354 | | 1150 | 1725 | 2079 | 2400 | 170M7107 |
| 20DH1K4 | 13 | 800 | - | 2 | | 40 | 1707 | | 1450 | 1595 | 2175 | 2400 | 170M7107 |
| | | - | 710 | 2 | | 40 | 1413 | | 1200 | 1800 | 2400 | 2400 | 170M7107 |

650 Volt DC Input Protection Devices, Frames 1 - 6

| Drive Catalog Number | Frame | HP Rating | | PWM kHz | Temp. ⁽²⁾ °C | DC Input Ratings | | Output Amps | | Fuse | Non-Time Delay Fuse ⁽³⁾ |
|------------------------|-------|-----------|------|---------|-------------------------|------------------|--|-------------|--------|--------|------------------------------------|
| | | ND | HD | | | Amps | | Cont. | 1 Min. | 3 Sec. | |
| 200D2P1 | 1 | 1 | 0.75 | 4 | 50 | 1.9 | | 2.1 | 2.4 | 3.2 | 6 JKS-6 |
| 200D3P4 | 1 | 2 | 1.5 | 4 | 50 | 3.0 | | 3.4 | 4.5 | 6.0 | 6 JKS-6 |
| 200D5P0 | 1 | 3 | 2 | 4 | 50 | 4.5 | | 5.0 | 5.5 | 7.5 | 10 JKS-10 |
| 200D8P0 | 1 | 5 | 3 | 4 | 50 | 8.1 | | 8.0 | 8.8 | 12 | 15 HSJ15 |
| 200D011 | 1 | 7.5 | 5 | 4 | 50 | 11.1 | | 11 | 12.1 | 16.5 | 20 HSJ20 |
| 200D014 | 1 | 10 | 7.5 | 4 | 50 | 14.6 | | 14 | 16.5 | 22 | 30 HSJ30 |
| 200D022 | 1 | 15 | 10 | 4 | 50 | 23.3 | | 22 | 24.2 | 33 | 40 HSJ40 |
| 200D027 | 2 | 20 | 15 | 4 | 50 | 28.9 | | 27 | 33 | 44 | 50 HSJ50 |
| 200D034 | 2 | 25 | 20 | 4 | 50 | 36.4 | | 34 | 40.5 | 54 | 60 HSJ60 |
| 200D040 | 3 | 30 | 25 | 4 | 50 | 42.9 | | 40 | 51 | 68 | 80 HSJ80 |
| 200D052 | 3 | 40 | 30 | 4 | 50 | 55.7 | | 52 | 60 | 80 | 90 HSJ90 |
| 200D065 | 3 | 50 | 40 | 4 | 50 | 69.6 | | 65 | 78 | 104 | 100 HSJ100 |
| 200D077 | 4 | 60 | 50 | 4 | 50 | 84.5 | | 77 | 97.5 | 130 | 150 HSJ150 |
| 200J096 ⁽¹⁾ | 5 | 75 | — | 4 | 50 | 105.3 | | 96 | 106 | 144 | 175 HSJ175 |
| | | — | 60 | 4 | 50 | 84.5 | | 77 | 116 | 154 | 175 HSJ175 |
| 200J125 ⁽¹⁾ | 5 | 100 | — | 4 | 50 | 137.1 | | 125 | 138 | 163 | 200 HSJ200 |
| | | — | 75 | 4 | 50 | 105.3 | | 96 | 144 | 168 | 200 HSJ200 |
| 200J140 ⁽¹⁾ | 5 | 100 | — | 4 | 50 | 137 | | 135 | 148 | 200 | 250 HSJ250 |
| | | — | 75 | 4 | 50 | 105.3 | | 96 | 144 | 192 | 250 HSJ250 |
| 200J156 ⁽¹⁾ | 6 | 125 | — | 4 | 50 | 171 | | 156 | 172 | 234 | 300 HSJ300 |
| | | — | 100 | 4 | 50 | 137.1 | | 125 | 188 | 250 | 300 HSJ300 |
| 200J180 ⁽¹⁾ | 6 | 150 | — | 4 | 50 | 198 | | 180 | 198 | 270 | 400 HSJ400 |
| | | — | 125 | 4 | 50 | 171.2 | | 156 | 234 | 312 | 400 HSJ400 |
| 200J248 ⁽¹⁾ | 6 | 200 | — | 2 | 40 | 272 | | 248 | 273 | 372 | 400 HSJ400 |
| | | — | 150 | 2 | 40 | 198 | | 180 | 270 | 360 | 400 HSJ400 |

- ⁽¹⁾ Also applies to "R" voltage class. Fuses must be applied in the (+) leg and (-) leg of the DC Common Bus.
- ⁽²⁾ The temperature rating listed for frame size 1-4 drives is for NEMA open types only. The adhesive tape label must be removed in order to operate at this temperature, otherwise the ambient operating temperature of these drives is 40°C.
- ⁽³⁾ The power source to Common Bus inverters must be derived from AC Voltages 600V or less, as defined in NFPA70: Art 430-18 (NEC). Battery supplies or MG sets are not included. The following devices were validated to break current of the derived power DC Bus: *Discomet*: Allen-Bradley Bulletin No. 1494, 30 to 400 A; Bulletin No. 194, 30 to 400 A, or ABB: OESA, 600 & 800 A; OESL, all sizes. Fuses: Bussmann Type JKS, all sizes; Type 170M, Case Sizes 1, 2 and 3, or Ferraz Shawmut Type HSJ, all sizes. For any other devices, please contact the factory.

650 Volt DC Input Protection Devices, Frames 9 - 13

| Drive Catalog Number | Frame | HP Rating | | PWM Freq. kHz | Temp. °C | DC Input Ratings | | Output Amps | | Fuse | Bussmann Style Fuse |
|----------------------|-------|-----------|------|---------------|----------|------------------|-------|-------------|--------|-----------------|---------------------|
| | | ND | HD | | | Amps | Cont. | 1 Min. | 3 Sec. | | |
| 20DJ261 | 9 | 200 | - | 2 | 40 | 294 | 261 | 287 | 410 | 500 | 170M6608 |
| 20DJ300 | 9 | - | 150 | 2 | 40 | 231 | 205 | 308 | 410 | 500 | 170M6608 |
| | | 250 | - | 2 | 40 | 338 | 300 | 330 | 450 | 630 | 170M6610 |
| 20DJ385 | 10 | - | 200 | 2 | 40 | 294 | 245 | 368 | 490 | 630 | 170M6610 |
| | | 300 | - | 2 | 40 | 434 | 385 | 424 | 600 | 700 | 170M6611 |
| 20DJ460 | 10 | - | 250 | 2 | 40 | 338 | 300 | 450 | 600 | 700 | 170M6611 |
| | | 350 | - | 2 | 40 | 519 | 460 | 506 | 770 | 900 | 170M6613 |
| 20DJ500 | 10 | - | 300 | 2 | 40 | 434 | 385 | 578 | 770 | 900 | 170M6613 |
| | | 450 | - | 2 | 40 | 564 | 500 | 550 | 750 | 500 (2 per phs) | 170M6608 |
| 20DJ590 | 11 | - | 350 | 2 | 40 | 474 | 420 | 630 | 840 | 500 (2 per phs) | 170M6608 |
| | | 500 | - | 2 | 40 | 666 | 590 | 649 | 956 | 550 (2 per phs) | 170M6609 |
| 20DJ650 | 11 | - | 450 | 2 | 40 | 587 | 520 | 780 | 956 | 550 (2 per phs) | 170M6609 |
| | | 500 | - | 2 | 40 | 733 | 650 | 715 | 1062 | 630 (2 per phs) | 170M6610 |
| 20DJ730 | 11 | - | 500 | 2 | 40 | 666 | 590 | 885 | 1062 | 630 (2 per phs) | 170M6610 |
| | | 600 | - | 2 | 40 | 824 | 730 | 803 | 1095 | 700 (2 per phs) | 170M6611 |
| 20DJ820 | 12 | - | 500 | 2 | 40 | 733 | 650 | 975 | 1170 | 700 (2 per phs) | 170M6611 |
| | | 700 | - | 2 | 40 | 925 | 820 | 902 | 1230 | 700 (2 per phs) | 170M6611 |
| 20DJ920 | 12 | - | 600 | 2 | 40 | 824 | 730 | 1095 | 1314 | 700 (2 per phs) | 170M6611 |
| | | 800 | - | 2 | 40 | 1038 | 920 | 1012 | 1380 | 550 (3 per phs) | 170M6609 |
| 20DJ1K0 | 12 | - | 700 | 2 | 40 | 925 | 820 | 1230 | 1476 | 550 (3 per phs) | 170M6609 |
| | | 900 | - | 2 | 40 | 1162 | 1030 | 1133 | 1555 | 630 (3 per phs) | 170M6610 |
| 20DJ1K1 | 13 | - | 800 | 2 | 35 | 1038 | 920 | 1370 | 1600 | 630 (3 per phs) | 170M6610 |
| | | 1000 | - | 2 | 40 | 1297 | 1150 | 1265 | 1620 | 2400 | 170M7107 |
| 20DJ1K3 | 13 | - | 900 | 2 | 40 | 1162 | 1030 | 1545 | 1620 | 2400 | 170M7107 |
| | | 1200 | - | 2 | 40 | 1467 | 1300 | 1430 | 2079 | 2400 | 170M7107 |
| 20DJ1K4 | 13 | - | 1000 | 2 | 40 | 1297 | 1150 | 1725 | 2079 | 2400 | 170M7107 |
| | | 1250 | - | 2 | 40 | 1636 | 1450 | 1595 | 2175 | 2400 | 170M7107 |
| | | - | 1000 | 2 | 40 | 1354 | 1200 | 1800 | 2400 | 2400 | 170M7107 |

810 Volt DC Input Protection Devices, Frames 1 - 6

| Drive Catalog Number | HP Rating | | Temp. ⁽¹⁾ °C | PWM Freq. | | DC Input Ratings | | Output Amps | | | Non-Time Delay Fuse ⁽²⁾ |
|----------------------|-----------|-----|----------------------------|-----------|-------------------|------------------|------|-------------|--------|--------|------------------------------------|
| | Frame | ND | | HD | kHz | Amps | Amps | Cont. | 1 Min. | 3 Sec. | |
| 20DE1P7 | 1 | 1 | 0.75 | 4 | 50 | 1.5 | 1.7 | 2 | 2.6 | 3 | JKS-3 |
| 20DE2P7 | 1 | 2 | 1.5 | 4 | 50 | 2.4 | 2.7 | 3.6 | 4.8 | 6 | JKS-6 |
| 20DE3P9 | 1 | 3 | 2 | 4 | 50 | 3.5 | 3.9 | 4.3 | 5.9 | 6 | JKS-6 |
| 20DE6P1 | 1 | 5 | 3 | 4 | 50 | 6.2 | 6.1 | 6.7 | 9.2 | 10 | JKS-10 |
| 20DE9P0 | 1 | 7.5 | 5 | 4 | 50 | 9.1 | 9 | 9.9 | 13.5 | 15 | HSJ15 |
| 20DE011 | 1 | 10 | 7.5 | 4 | 50 | 11.5 | 11 | 13.5 | 18 | 20 | HSJ20 |
| 20DE017 | 1 | 15 | 10 | 4 | 50 | 18 | 17 | 18.7 | 25.5 | 30 | HSJ30 |
| 20DE022 | 2 | 20 | 15 | 4 | 50 | 23.6 | 22 | 25.5 | 34 | 40 | HSJ40 |
| 20DE027 | 2 | 25 | 20 | 4 | 50 | 29 | 27 | 33 | 44 | 50 | HSJ50 |
| 20DE032 | 3 | 30 | 25 | 4 | 50 | 34.3 | 32 | 40.5 | 54 | 60 | HSJ60 |
| 20DE041 | 3 | 40 | 30 | 4 | 50 | 43.9 | 41 | 48 | 64 | 70 | HSJ70 |
| 20DE052 | 3 | 50 | 40 | 4 | 50 | 55.7 | 52 | 61.5 | 82 | 90 | HSJ90 |
| 20DE062 | 4 | 60 | 50 | 2 | 45 | 68.0 | 62 | 78 | 104 | 125 | HSJ125 |
| 20DT099 | 5 | 100 | – | 2 | 50 ⁽²⁾ | 108.6 | 99 | 109 | 126 | 150 | HSJ150 |
| 20DT144 | 6 | – | 75 | 2 | 50 ⁽²⁾ | 84.5 | 77 | 116 | 138 | 150 | HSJ150 |
| | | 150 | – | 2 | 50 ⁽²⁾ | 158 | 144 | 158 | 216 | 200 | HSJ200 |
| | | – | 125 | 2 | 40 ⁽²⁾ | 137.1 | 125 | 188 | 250 | 200 | HSJ200 |

(1) The temperature rating listed for frame size 1-4 drives is for NEMA open types only. The adhesive tape label must be removed in order to operate at this temperature, otherwise the ambient operating temperature of these drives is 40°C.

(2) The power source to Common Bus inverters must be derived from AC Voltages 600V or less, as defined in NFPA70: Art 430-18 (NEC). Battery supplies or MG sets are not included. The following devices were validated to break current of the derived power DC Bus:
Disconnects: Allen-Bradley Bulletin No. 1494, 30 to 400 A; Bulletin No. 194, 30 to 400 A; or ABB: OESA, 600 & 800 A; OESL, all sizes.
Fuses: Bussmann Type JKS, all sizes; Type 170M, Case Sizes 1, 2 and 3, or Ferraz Shawmut Type HSI, all sizes. For any other devices, please contact the factory.

932Volt DC Input Protection Devices, Frames 5 & 6

| Drive Catalog Number | kW Rating | | Temp. ⁽¹⁾ °C | PWM Freq. | | DC Input Ratings | | Output Amps | | | Non-Time Delay Fuse ⁽²⁾ |
|----------------------|-----------|-----|----------------------------|-----------|-------------------|------------------|------|-------------|--------|--------|------------------------------------|
| | Frame | ND | | HD | kHz | Amps | Amps | Cont. | 1 Min. | 3 Sec. | |
| 20DW098 | 5 | 90 | – | 2 | 50 ⁽²⁾ | 92.3 | 98 | 108 | 127 | 160 | HSJ160 |
| 20DW142 | 6 | – | 75 | 2 | 50 ⁽²⁾ | 92.3 | 82 | 123 | 140 | 160 | HSJ160 |
| | | 132 | – | 2 | 50 ⁽²⁾ | 162.2 | 142 | 156 | 213 | 250 | HSJ250 |
| | | – | 110 | 2 | 40 ⁽²⁾ | 134.9 | 119 | 179 | 238 | 250 | HSJ250 |

(1) The temperature rating listed for frame size 1-4 drives is for NEMA open types only. The adhesive tape label must be removed in order to operate at this temperature, otherwise the ambient operating temperature of these drives is 40°C.

(2) The power source to Common Bus inverters must be derived from AC Voltages 600V or less, as defined in NFPA70: Art 430-18 (NEC). Battery supplies or MG sets are not included. The following devices were validated to break current of the derived power DC Bus:
Disconnects: Allen-Bradley Bulletin No. 1494, 30 to 400 A; Bulletin No. 194, 30 to 400 A; or ABB: OESA, 600 & 800 A; OESL, all sizes.
Fuses: Bussmann Type JKS, all sizes; Type 170M, Case Sizes 1, 2 and 3, or Ferraz Shawmut Type HSI, all sizes. For any other devices, please contact the factory.

810 Volt DC Input Protection Devices, Frames 9 - 13

| Drive Catalog Number | Frame | HP Rating | | PWM Freq. kHz | Temp. °C | DC Input Ratings | | Output Amps | | | Fuse | Bussmann Style Fuse |
|------------------------|-------|-----------|------|---------------|----------|------------------|--|-------------|--------|--------|-----------------|---------------------|
| | | ND | HD | | | Amps | | Cont. | 1 Min. | 3 Sec. | | |
| 20DK170 | 9 | 150 | — | 2 | 40 | 192 | | 170 | 187 | 245 | 400 | 170M5608 |
| | | — | 150 | 2 | 40 | 162 | | 144 | 216 | 245 | 400 | 170M5608 |
| 20DK208 | 9 | 200 | — | 2 | 35 | 235 | | 208 | 230 | 289 | 450 | 170M5609 |
| | | — | 150 | 2 | 40 | 192 | | 170 | 250 | 289 | 450 | 170M5609 |
| 20DK261 | 10 | 250 | — | 2 | 40 | 294 | | 261 | 287 | 375 | 450 | 170M5609 |
| | | — | 200 | 2 | 40 | 235 | | 208 | 312 | 375 | 450 | 170M5609 |
| 20DK325 | 10 | 350 | — | 2 | 40 | 367 | | 325 | 358 | 470 | 550 | 170M6609 |
| | | — | 250 | 2 | 40 | 294 | | 261 | 392 | 470 | 550 | 170M6609 |
| 20DK385 | 10 | 400 | — | 2 | 40 | 434 | | 385 | 424 | 585 | 700 | 170M6611 |
| | | — | 350 | 2 | 40 | 367 | | 325 | 488 | 585 | 700 | 170M6611 |
| 20DK416 | 10 | 450 | — | 2 | 35 | 469 | | 416 | 458 | 585 | 800 | 170M6612 |
| | | — | 350 | 2 | 40 | 367 | | 325 | 488 | 585 | 800 | 170M6612 |
| 20DK460 | 11 | 500 | — | 2 | 40 | 519 | | 460 | 506 | 693 | 450 (2 per phs) | 170M5609 |
| | | — | 400 | 2 | 40 | 434 | | 385 | 578 | 693 | 450 (2 per phs) | 170M5609 |
| 20DK502 | 11 | 500 | — | 2 | 40 | 566 | | 502 | 552 | 828 | 500 (2 per phs) | 170M6608 |
| | | — | 500 | 2 | 40 | 519 | | 460 | 690 | 828 | 500 (2 per phs) | 170M6608 |
| 20DK590 | 11 | 600 | — | 2 | 35 | 666 | | 590 | 649 | 885 | 500 (2 per phs) | 170M6608 |
| | | — | 500 | 2 | 35 | 566 | | 502 | 753 | 904 | 500 (2 per phs) | 170M6608 |
| 20DK650 | 12 | 700 | — | 2 | 40 | 733 | | 650 | 715 | 1062 | 500 (2 per phs) | 170M6608 |
| | | — | 650 | 2 | 40 | 666 | | 590 | 885 | 1062 | 500 (2 per phs) | 170M6608 |
| 20DK750 | 12 | 800 | — | 2 | 40 | 846 | | 750 | 825 | 1170 | 630 (2 per phs) | 170M6610 |
| | | — | 700 | 2 | 40 | 733 | | 650 | 975 | 1170 | 630 (2 per phs) | 170M6610 |
| 20DK820 ⁽¹⁾ | 12 | 900 | — | 2 | 35 | 925 | | 820 | 902 | 1170 | 630 (2 per phs) | 170M6610 |
| | | — | 700 | 2 | 35 | 733 | | 650 | 975 | 1170 | 630 (2 per phs) | 170M6610 |
| 20DK920 | 13 | 1000 | — | 2 | 40 | 1038 | | 920 | 1012 | 1380 | 2400 | 170M7107 |
| | | — | 900 | 2 | 40 | 925 | | 820 | 1230 | 1410 | 2400 | 170M7107 |
| 20DK1K0 | 13 | 1100 | — | 2 | 40 | 1162 | | 1030 | 1133 | 1545 | 2400 | 170M7107 |
| | | — | 1000 | 2 | 40 | 1038 | | 920 | 1380 | 1755 | 2400 | 170M7107 |
| 20DK1K1 | 13 | 1300 | — | 2 | 35 | 1331 | | 1180 | 1298 | 1755 | 2400 | 170M7107 |
| | | — | 1100 | 2 | 35 | 1162 | | 1030 | 1463 | 1755 | 2400 | 170M7107 |

⁽¹⁾ 20DK820 drives (ND) are only capable of producing 95% of starting torque under 10 Hz.

932 Volt DC Input Protection Devices, Frames 9 - 13

| Drive Catalog Number | Frame | kW Rating | | PWM Freq. kHz | Temp. °C | DC Input Ratings | | Output Amps | | | Fuse | Bussmann Style Fuse |
|------------------------|-------|-----------|------|---------------|----------|------------------|-------|-------------|--------|-----------------|----------|---------------------|
| | | ND | HD | | | Amps | Cont. | 1 Min. | 3 Sec. | | | |
| 20DM170 | 9 | 160 | — | 2 | 40 | 200 | 170 | 187 | 245 | 315 | 170M3746 | |
| 20DM208 | 9 | — | 132 | 2 | 40 | 170 | 144 | 216 | 245 | 315 | 170M3746 | |
| | | 200 | — | 2 | 35 | 245 | 208 | 230 | 289 | 400 | 170M5742 | |
| 20DM261 | 10 | — | 160 | 2 | 40 | 200 | 170 | 250 | 289 | 400 | 170M5742 | |
| | | 250 | — | 2 | 40 | 307 | 261 | 287 | 375 | 500 | 170M5744 | |
| 20DM325 | 10 | — | 200 | 2 | 40 | 245 | 208 | 312 | 375 | 500 | 170M5744 | |
| | | 315 | — | 2 | 40 | 383 | 325 | 358 | 470 | 630 | 170M5746 | |
| 20DM385 | 10 | — | 250 | 2 | 40 | 307 | 261 | 392 | 470 | 630 | 170M5746 | |
| | | 355 | — | 2 | 40 | 453 | 385 | 424 | 585 | 700 | 170M6745 | |
| 20DM416 | 10 | — | 315 | 2 | 40 | 383 | 325 | 488 | 585 | 700 | 170M6745 | |
| | | 400 | — | 2 | 35 | 490 | 416 | 458 | 585 | 700 | 170M6745 | |
| 20DM460 | 11 | — | 315 | 2 | 40 | 383 | 325 | 488 | 585 | 700 | 170M6745 | |
| | | 450 | — | 2 | 40 | 542 | 460 | 506 | 693 | 450 (2 per phs) | 170M5743 | |
| 20DM502 | 11 | — | 355 | 2 | 40 | 453 | 385 | 578 | 693 | 450 (2 per phs) | 170M5743 | |
| | | 500 | — | 2 | 40 | 591 | 502 | 552 | 828 | 500 (2 per phs) | 170M5744 | |
| 20DM590 | 11 | — | 400 | 2 | 40 | 542 | 460 | 690 | 828 | 500 (2 per phs) | 170M5744 | |
| | | 560 | — | 2 | 35 | 695 | 590 | 649 | 885 | 500 (2 per phs) | 170M5744 | |
| 20DM650 | 12 | — | 500 | 2 | 35 | 591 | 502 | 753 | 904 | 500 (2 per phs) | 170M5744 | |
| | | 630 | — | 2 | 40 | 765 | 650 | 715 | 1062 | 550 (2 per phs) | 170M5745 | |
| 20DM750 | 12 | — | 560 | 2 | 40 | 695 | 590 | 885 | 1062 | 550 (2 per phs) | 170M5745 | |
| | | 710 | — | 2 | 40 | 883 | 750 | 825 | 1170 | 630 (2 per phs) | 170M5746 | |
| 20DM820 ⁽¹⁾ | 12 | — | 630 | 2 | 40 | 765 | 650 | 975 | 1170 | 630 (2 per phs) | 170M5746 | |
| | | 800 | — | 2 | 35 | 965 | 820 | 902 | 1170 | 630 (2 per phs) | 170M5746 | |
| 20DM920 | 13 | — | 630 | 2 | 35 | 765 | 650 | 975 | 1170 | 630 (2 per phs) | 170M5746 | |
| | | 1000 | — | 2 | 40 | 1038 | 920 | 1012 | 1380 | 2400 | 170M7107 | |
| 20DM1K0 | 13 | — | 900 | 2 | 40 | 925 | 820 | 1230 | 1410 | 2400 | 170M7107 | |
| | | 1100 | — | 2 | 40 | 1162 | 1030 | 1133 | 1545 | 2400 | 170M7107 | |
| 20DM1K1 | 13 | — | 1000 | 2 | 40 | 1038 | 920 | 1380 | 1755 | 2400 | 170M7107 | |
| | | 1300 | — | 2 | 35 | 1331 | 1180 | 1298 | 1755 | 2400 | 170M7107 | |
| | | — | 1100 | 2 | 35 | 1162 | 1030 | 1463 | 1755 | 2400 | 170M7107 | |

⁽¹⁾ 20DM820 drives (ND) are only capable of producing 95% of starting torque under 10 Hz.

List of Motors with Compatible Thermistor Ratings

| Motor Type | Motor (kW) | Type (Catalog No.) ⁽¹⁾ | Poles | Base Speed (RPM) | Voltage (Vrms) | Rate Current (Arms) | Ex. Current (Arms) | GD2 (Kg/m ²) |
|---------------|------------|-----------------------------------|-------|------------------|----------------|---------------------|--------------------|--------------------------|
| 200 STD Motor | 1.5 | M-51027 | 4 | 1500 | 180 | 7.5 | - | 0.024 |
| | 2.2 | M-51028 | 4 | 1500 | 180 | 11 | - | 0.045 |
| | 3.7 | M-51001 | 4 | 1500 | 180 | 18 | - | 0.066 |
| | 3.7 | M-51007-1 | 4 | 1500 | 180 | 18 | - | 0.066 |
| | 5.5 | M-51002 | 4 | 1500 | 180 | 25 | - | 0.12 |
| | 5.5 | M-51008-1 | 4 | 1500 | 180 | 25 | - | 0.12 |
| | 7.5 | M-51003 | 4 | 1500 | 180 | 33 | - | 0.15 |
| | 7.5 | M-51009-1 | 4 | 1500 | 180 | 33 | - | 0.15 |
| | 11 | M-51004 | 4 | 1500 | 180 | 47 | - | 0.32 |
| | 11 | M-51010-1 | 4 | 1500 | 180 | 47 | - | 0.32 |
| | 15 | M-51005 | 4 | 1500 | 180 | 63 | - | 0.43 |
| | 15 | M-51011-1 | 4 | 1500 | 180 | 63 | - | 0.43 |
| | 18.5 | M-51012 | 4 | 1500 | 180 | 81 | - | 0.71 |
| | 18.5 | M-51012-1 | 4 | 1500 | 180 | 81 | - | 0.71 |
| | 22 | M-51013 | 4 | 1500 | 180 | 95 | - | 0.82 |
| | 22 | M-51013-1 | 4 | 1500 | 180 | 95 | - | 0.82 |
| | 30 | M-51050 | 4 | 1500 | 155 | 145 | - | 0.83 |
| | 37 | M-51051 | 4 | 1500 | 155 | 183 | - | 1.1 |
| | 45 | M-51052 | 4 | 1500 | 155 | 220 | - | 1.4 |
| | 55 | M-51053 | 4 | 1500 | 155 | 265 | - | 2 |
| | 75 | M-51054 | 4 | 1500 | 155 | 346 | - | 2.7 |
| 200 SVO Motor | 0.75 | M-51043 | 4 | 1500 | 140 | 5.3 | - | 0.0075 |
| | 1.5 | M-51015 | 4 | 1500 | 140 | 11.4 | - | 0.0100 |
| | 2.2 | M-51016 | 4 | 1500 | 140 | 15 | - | 0.0120 |
| | 3.7 | M-51017 | 4 | 1500 | 140 | 24.5 | - | 0.0180 |
| | 5.5 | M-51018 | 4 | 1500 | 140 | 34.8 | - | 0.0390 |
| | 7.5 | M-51019 | 4 | 1500 | 140 | 44 | - | 0.0470 |
| | 11 | M-51020 | 4 | 1500 | 140 | 67.1 | - | 0.0810 |
| | 15 | M-51021 | 4 | 1500 | 140 | 80.7 | - | 0.1370 |
| | 22 | M-51022 | 4 | 1500 | 140 | 120 | - | 0.2000 |
| | 30 | M-51023 | 6 | 1000 | 155 | 176 | - | 0.5800 |
| | 37 | M-51024 | 6 | 1000 | 155 | 210 | - | 0.7000 |
| | 55 | M-51026 | 6 | 1000 | 135 | 334 | - | 1.1000 |
| | 55 | M-51027 | 6 | 500 | 155 | 315 | - | 4.0000 |
| 400 STD Motor | 1.5 | MC-M2051 | 4 | 1500 | 320 | 4.7 | 2.045 | - |
| | 2.2 | MC-M2052 | 4 | 1500 | 320 | 6.3 | 3.24 | - |
| | 3.7 | MC-M2053 | 4 | 1500 | 320 | 10 | 5.25 | - |
| | 5.5 | MC-M2054 | 4 | 1500 | 320 | 15.5 | 8.8 | - |
| | 7.5 | MC-M2055 | 4 | 1500 | 320 | 20.5 | 11.25 | - |
| | 11 | MC-M2056 | 4 | 1500 | 320 | 29 | 14.3 | - |
| | 15 | MC-M2057 | 4 | 1500 | 320 | 37 | 16.4 | - |
| | 18.5 | MC-M2058 | 4 | 1500 | 320 | 45 | 19.65 | - |
| | 22 | MC-M2059 | 4 | 1500 | 320 | 53 | 23 | - |
| | 30 | MC-M2060 | 4 | 1500 | 320 | 71 | 28.15 | - |
| | 37 | MC-M2061 | 4 | 1500 | 320 | 85 | 29.7 | - |
| | 45 | MC-M2062 | 4 | 1500 | 320 | 97 | 30.55 | - |
| | 55 | MC-M2063 | 4 | 1500 | 320 | 121 | - | - |
| | 75 | MC-M2064 | 4 | 1500 | 320 | 163 | - | - |
| | 90 | MC-M2065 | 4 | 1500 | 320 | 188 | - | - |
| | 110 | MC-M2066 | 4 | 1500 | 320 | 227 | - | - |
| | 132 | MC-M2067 | 4 | 1500 | 320 | 280 | - | - |
| | 160 | MC-M2068 | 4 | 1500 | 320 | 335 | - | - |
| | 200 | MC-M2069 | 4 | 1500 | 320 | 375 | - | - |

| Motor Type | Motor (kW) | Type (Catalog No.) ⁽¹⁾ | Poles | Base Speed (RPM) | Voltage (Vrms) | Rate Current (Arms) | Ex. Current (Arms) | GD2 (Kg/m ²) |
|----------------------|------------|-----------------------------------|-------|------------------|----------------|---------------------|--------------------|--------------------------|
| 400 SVO Motor | 1.5 | MC-M20 | 4 | 1500 | 280 | 5.4 | - | - |
| | 2.2 | MC-M20 | 4 | 1500 | 280 | 7.3 | - | - |
| | 3.7 | MC-M20 | 4 | 1500 | 280 | 12.3 | - | - |
| | 5.5 | MC-M20 | 4 | 1500 | 280 | 17.3 | - | - |
| | 7.5 | MC-M20 | 4 | 1500 | 280 | 22 | - | - |
| | 11 | MC-M20 | 4 | 1500 | 280 | 34 | - | - |
| | 15 | MC-M20 | 4 | 1500 | 280 | 42 | - | - |
| | 22 | MC-M20 | 4 | 1500 | 280 | 58.5 | - | - |
| | 22 | MC-M20 | 4 | 1500 | 280 | 58.5 | - | - |
| | 30 | MC-M20 | 6 | 1000 | 280 | 88 | - | - |
| | 37 | MC-M20 | 6 | 1000 | 280 | 125 | - | - |

⁽¹⁾ Manufacturer, Reliance Electric-Japan, catalog number for ordering.

Auxiliary Power Supply

The following are manufacturers of Auxiliary Power Supplies for 300V DC.

| Frame Size | Manufacturer | Manufacturer Part Number |
|------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------|
| All | Allen-Bradley 24V Input Drive Input - all voltage classes Refer to the <i>PowerFlex 700S Auxiliary Control Power Supply Installation Instructions</i> , publication 20D-IN021... for more information. | 20-24V-AUX1 |
| 1-4 | Phoenix Contact: 24V Input 230V Input | 29 49 82 6 29 49 81 3 |
| 1-6 | Acopian | U300Y20 |

Drive Frame Size to HP/kW Ratings Cross Reference

Table A.A PowerFlex 700S Drives with AC Input

| Frame | 208 | | 240 | | 400V | | 480V | | 600V | | 690V | |
|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| | ND kW | HD kW | ND HP | HD HP | ND kW | HD kW | ND HP | HD HP | ND HP | HD HP | ND kW | HD kW |
| 1 | 0.75 | 0.55 | 1.0 | 0.75 | 0.75 | 0.55 | 1 | 0.75 | 1 | 0.75 | - | - |
| | 1.5 | 1.1 | 2.0 | 1.5 | 1.5 | 1.1 | 2 | 1.5 | 2 | 1.5 | - | - |
| | 2.2 | 1.5 | 3.0 | 2.0 | 2.2 | 1.5 | 3 | 2 | 3 | 2 | - | - |
| | 4.0 | 3.0 | 5.0 | 3.0 | 4.0 | 3.0 | 5 | 3 | 5 | 3 | - | - |
| | 5.5 | 4.0 | 7.5 | 5.0 | 5.5 | 4.0 | 7.5 | 5 | 7.5 | 5 | - | - |
| | - | - | - | - | 7.5 | 5.5 | 10 | 7.5 | 10 | 7.5 | - | - |
| 2 | - | - | - | - | 11 | 7.5 | 15 | 10 | 15 | 10 | - | - |
| | 7.5 | 5.5 | 10 | 7.5 | 15 | 11 | 20 | 15 | 20 | 15 | - | - |
| 3 | - | - | - | - | 18.5 | 15 | 25 | 20 | 25 | 20 | - | - |
| | 11 | 7.5 | 15 | 10 | 22 | 18.5 | 30 | 25 | 30 | 25 | - | - |
| | 15 | 11 | 20 | 15 | 30 | 22 | 40 | 30 | 40 | 30 | - | - |
| 4 | - | - | - | - | 37 | 30 | 50 | 40 | 50 | 40 | - | - |
| | 18.5 | 15 | 25 | 20 | 45 | 37 | 60 | 50 | 60 | 50 | - | - |
| 5 | 22 | 18.5 | 30 | 25 | - | - | - | - | - | - | - | - |
| | 30 | 22 | 40 | 30 | 55 | 45 | 75 | 60 | 75 | 60 | 45 | 37.5 |
| | 37 | 30 | 50 | 40 | 55 | 45 | 100 | 75 | 100 | 75 | 55 | 45 |
| | - | - | - | - | - | - | - | - | - | - | 75 | 55 |
| 6 | - | - | - | - | - | - | - | - | - | - | 90 | 75 |
| | 45 | 37 | 60 | 50 | 75 | 55 | 125 | 100 | 125 | 100 | 110 | 90 |
| | 55 | 45 | 75 | 60 | 90 | 75 | 150 | 125 | 150 | 125 | 132 | 110 |
| | 66 | 55 | 100 | 75 | 110 | 90 | 200 | 150 | - | - | - | - |
| 9 | - | - | - | - | 132 | 110 | - | - | - | - | - | - |
| | - | - | - | - | 160 | 132 | 200 | 150 | 200 | 150 | 160 | 132 |
| | - | - | - | - | 160 | 132 | 250 | 200 | 200 | 150 | 200 | 160 |
| 10 | - | - | - | - | 200 | 160 | 300 | 250 | 250 | 200 | 250 | 200 |
| | - | - | - | - | 250 | 200 | 350 | 300 | 350 | 250 | 315 | 250 |
| | - | - | - | - | 250 | 250 | 450 | 350 | 400 | 350 | 355 | 315 |
| | - | - | - | - | - | - | - | - | 450 | 350 | 400 | 315 |

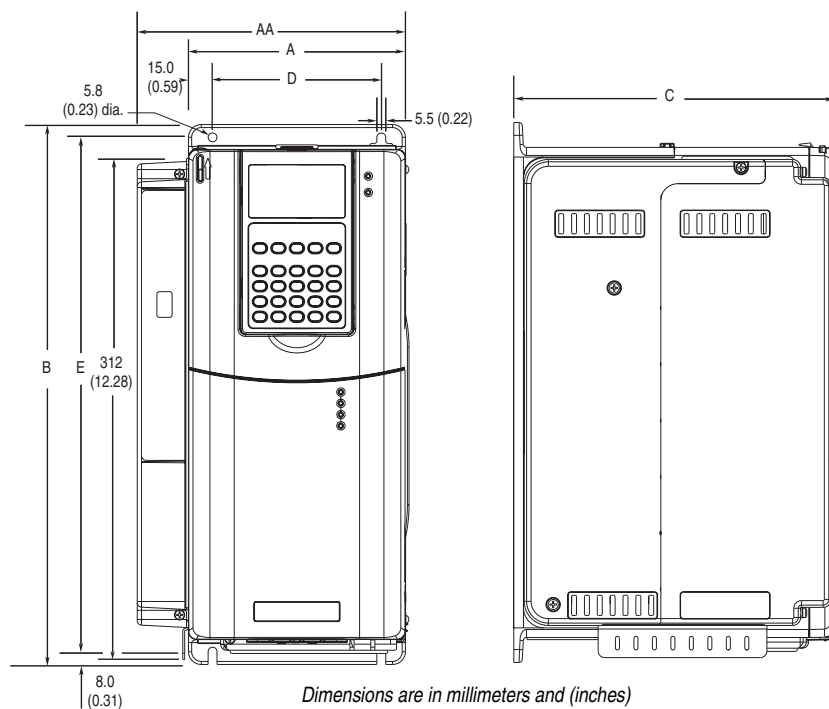
| Frame | 208 | | 240 | | 400V | | 480V | | 600V | | 690V | |
|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| | ND kW | HD kW | ND HP | HD HP | ND kW | HD kW | ND HP | HD HP | ND HP | HD HP | ND kW | HD kW |
| 11 | — | — | — | — | 315 | 250 | 500 | 450 | 500 | 400 | 450 | 355 |
| | — | — | — | — | 355 | 315 | 500 | 500 | 500 | 500 | 500 | 400 |
| | — | — | — | — | 400 | 355 | 600 | 500 | 600 | 500 | 560 | 500 |
| 12 | — | — | — | — | 450 | 400 | 700 | 600 | 700 | 650 | 630 | 560 |
| | — | — | — | — | 500 | 450 | 800 | 700 | 800 | 700 | 710 | 630 |
| | — | — | — | — | 560 | 500 | 900 | 800 | 900 | 700 | 800 | 630 |
| 13 | — | — | — | — | 630 | 560 | 1000 | 900 | 1000 | 900 | 900 | 800 |
| | — | — | — | — | 710 | 630 | 1200 | 1000 | 1100 | 1000 | 1000 | 900 |
| | — | — | — | — | 800 | 710 | 1250 | 1000 | 1300 | 1100 | 1100 | 1000 |

Table A.B PowerFlex 700S Drives with DC Input

| Frame | 325V | | 540V | | 650V | | 810V | | 932V | |
|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| | ND HP | HD HP | ND kW | HD kW | ND HP | HD HP | ND HP | HD HP | ND kW | HD kW |
| 1 | 5.0 | 3.0 | 1.5 | 1.1 | 1.0 | 0.75 | 1.0 | 0.75 | — | — |
| | 7.5 | 5.0 | 2.2 | 1.5 | 2.0 | 1.5 | 2.0 | 1.5 | — | — |
| | — | — | 4.0 | 3.0 | 3.0 | 2.0 | 3.0 | 2.0 | — | — |
| | — | — | 5.5 | 4.0 | 5.0 | 3.0 | 5.0 | 3.0 | — | — |
| | — | — | 7.5 | 5.5 | 7.5 | 5.0 | 7.5 | 5.0 | — | — |
| | — | — | 11.0 | 7.5 | 10.0 | 7.5 | 10.0 | 7.5 | — | — |
| 2 | — | — | — | — | 15 | 10 | 15 | 10 | — | — |
| | 10 | 7.5 | 15 | 11 | 20 | 15 | 20 | 15 | — | — |
| 3 | — | — | 18.5 | 15 | 25 | 20 | 25 | 20 | — | — |
| | 15 | 10 | 22 | 18.5 | 30 | 25 | 30 | 25 | — | — |
| | 20 | 15 | 20 | 22 | 40 | 30 | 40 | 30 | — | — |
| | — | — | 37 | 30 | 50 | 40 | 50 | 40 | — | — |
| 4 | 25 | 20 | 45 | 37 | 60 | 50 | 60 | 50 | — | — |
| | 30 | 25 | — | — | — | — | — | — | — | — |
| 5 | 40 | 30 | 55 | 45 | 75 | 60 | 100 | 75 | 90 | 75 |
| | 50 | 40 | 55 | 45 | 100 | 75 | — | — | — | — |
| | — | — | 75 | 55 | 100 | 75 | — | — | — | — |
| 6 | 60 | 50 | 90 | 75 | 125 | 100 | 150 | 125 | 132 | 110 |
| | 75 | 60 | 110 | 90 | 150 | 125 | — | — | — | — |
| | 100 | 75 | 132 | 110 | 200 | 150 | — | — | — | — |
| 9 | — | — | 132 | 110 | 200 | 150 | 150 | 150 | 160 | 132 |
| | — | — | 160 | 132 | 250 | 200 | 200 | 150 | 200 | 160 |
| 10 | — | — | 200 | 160 | 300 | 250 | 250 | 200 | 250 | 200 |
| | — | — | 250 | 200 | 350 | 300 | 350 | 250 | 315 | 250 |
| | — | — | 250 | 250 | 450 | 350 | 400 | 350 | 355 | 315 |
| | — | — | — | — | — | — | 450 | 350 | 400 | 315 |
| 11 | — | — | 315 | 250 | 500 | 450 | 500 | 400 | 450 | 355 |
| | — | — | 355 | 315 | 500 | 500 | 500 | 500 | 500 | 400 |
| | — | — | 400 | 355 | 600 | 500 | 600 | 500 | 560 | 500 |
| 12 | — | — | 450 | 400 | 700 | 600 | 700 | 650 | 630 | 560 |
| | — | — | 500 | 450 | 800 | 700 | 800 | 700 | 710 | 630 |
| | — | — | 560 | 500 | 900 | 800 | 900 | 700 | 800 | 630 |
| 13 | — | — | 630 | 560 | 1000 | 900 | 1000 | 900 | 1000 | 900 |
| | — | — | 710 | 630 | 1200 | 1000 | 1100 | 1000 | 1100 | 1000 |
| | — | — | 800 | 710 | 1250 | 1000 | 1300 | 1100 | 1300 | 1100 |

Approximate Dimensions

Figure A.1 Frame 1-3 (Frame 1 Shown)



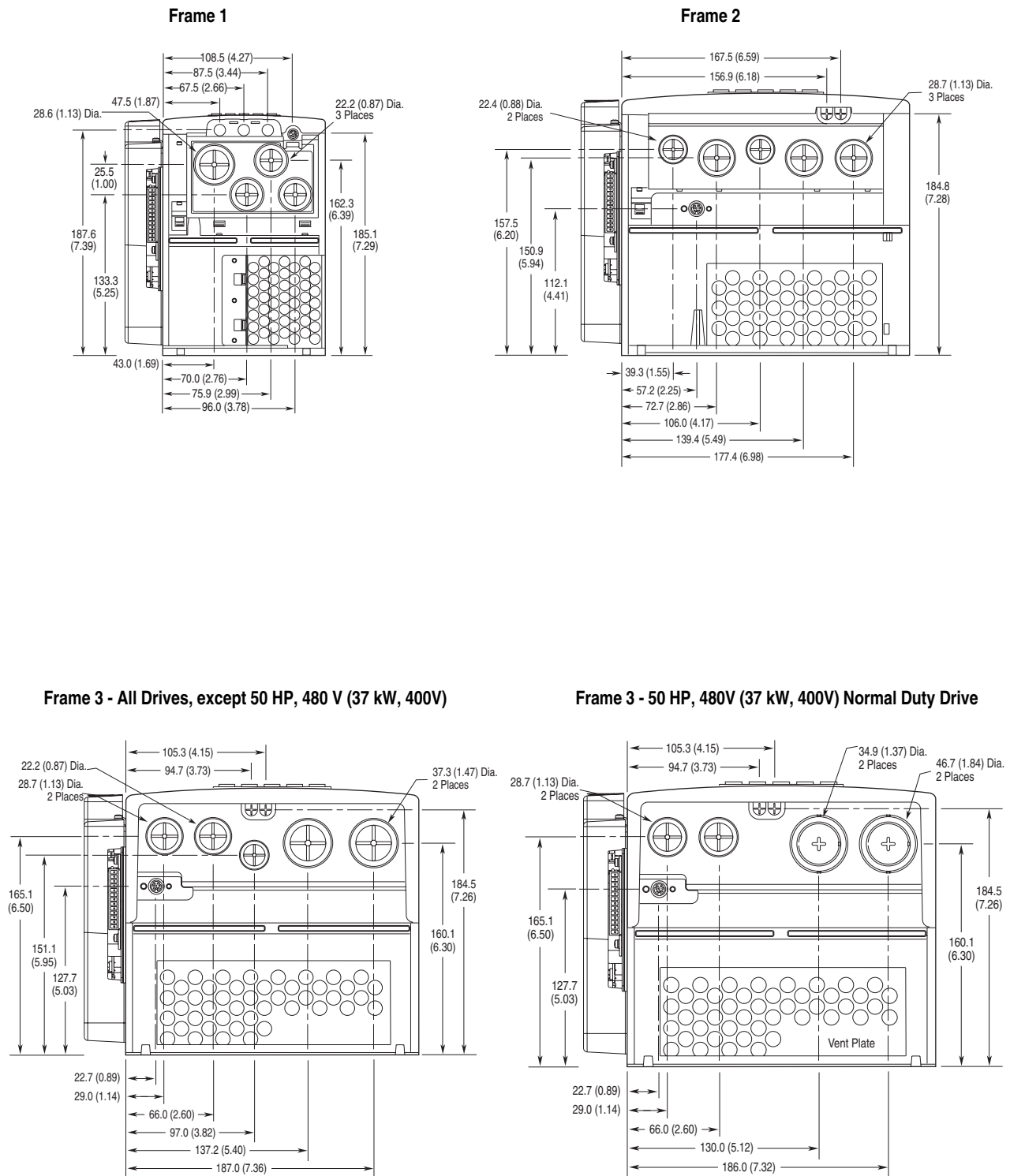
Dimensions are in millimeters and (inches)

| Frame ⁽¹⁾ | Slim A | Expanded AA | B | C | D | E | Weight ⁽²⁾ kg (lbs.) | |
|----------------------|--------------|----------------|---------------|--------------|--------------|---------------|---------------------------------|-------------------|
| | | | | | | | Drive | Drive & Packaging |
| 1 | 135.0 (5.31) | 166.9 (6.57) | 336.0 (13.23) | 200.0 (7.87) | 105.0 (4.13) | 320.0 (12.60) | 7.03 (15.5) | 9.98 (22) |
| 2 | 222.0 (8.74) | 253.9 (9.99) | 342.5 (13.48) | 200.0 (7.87) | 192.0 (7.56) | 320.0 (12.60) | 12.52 (27.6) | 15.20 (33.5) |
| 3 | 222.0 (8.74) | 253.9 (9.99) | 517.5 (20.37) | 200.0 (7.87) | 192.0 (7.56) | 500.0 (19.69) | 18.55 (40.9) | 22.68 (50) |

⁽¹⁾ Refer to [Drive Frame Size to HP/kW Ratings Cross Reference on page A-31](#) for frame information.

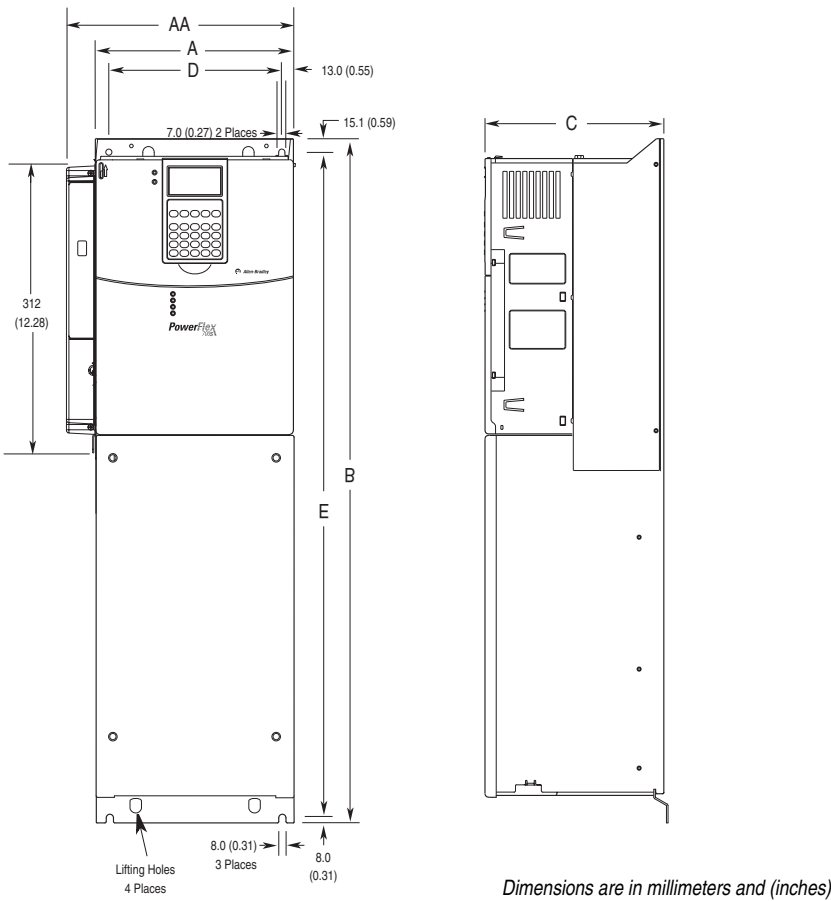
⁽²⁾ Weights include HIM, DriveLogix controller with ControlNet daughtercard, Hi-Resolution Encoder Option, and 20-COMM-C ControlNet adapter.

Figure A.2 Frame 1-3 Bottom Views



Dimensions are in millimeters and (inches)

Figure A.3 Frame 4 Dimensions



| Frame ⁽¹⁾ | Slim A (Max.) | Expanded AA | B | C (Max.) | D | E | Weight ⁽²⁾ kg (lbs.) | |
|----------------------|------------------|----------------|---------------|--------------|--------------|---------------|---------------------------------|-------------------|
| | | | | | | | Drive | Drive & Packaging |
| 4 | 220.0 (8.66) | 251.9 (9.92) | 758.8 (29.87) | 201.7 (7.94) | 192.0 (7.56) | 738.2 (29.06) | 24.49 (54.0) | 29.03 (64.0) |

(1) Refer to the [Drive Frame Size to HP/kW Ratings Cross Reference on page A-31](#) table for frame information.

(2) Weights include HIM, DriveLogix controller with ControlNet daughtercard, Hi-Resolution Encoder Option, and 20-COMM-C ControlNet adapter.

Figure A.4 Frame 4 Bottom View

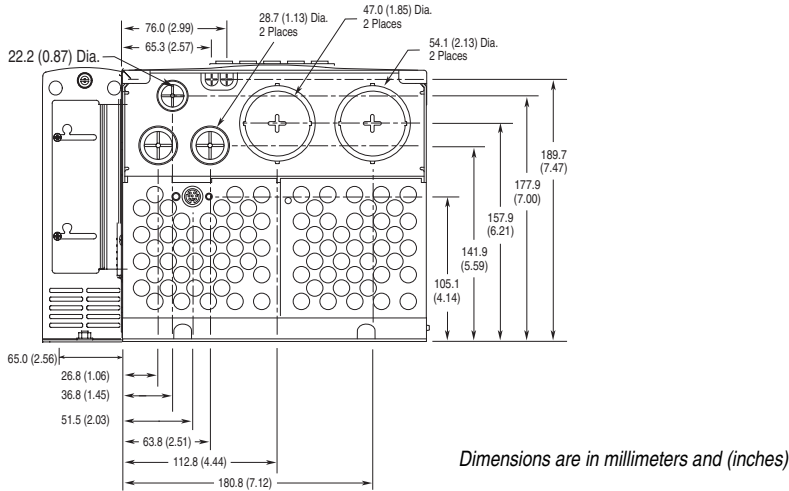
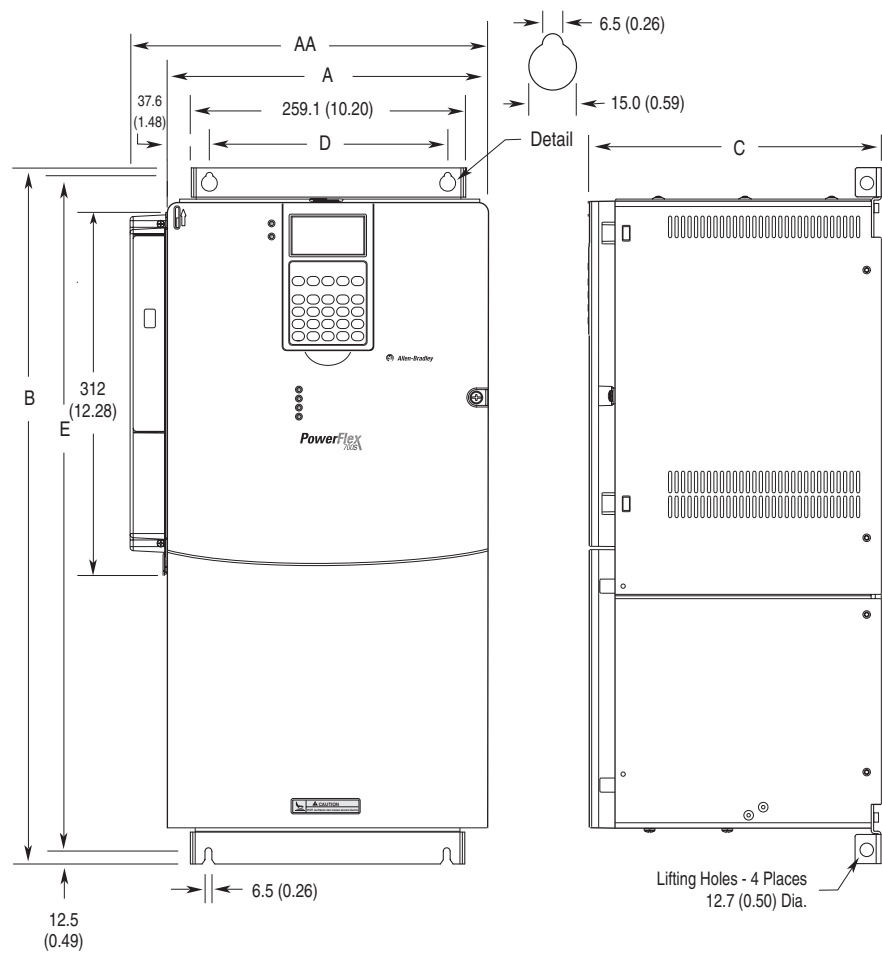


Figure A.5 Frame 5 Dimensions



Dimensions are in millimeters and (inches)

| Frame ⁽¹⁾ | Slim A (Max.) | Expanded AA | B | C (Max.) | D | E | Weight ⁽³⁾ kg (lbs.) | |
|----------------------|------------------|----------------|------------------------------|---------------|--------------|---------------|---------------------------------|-------------------|
| | | | | | | | Drive | Drive & Packaging |
| 5 | 308.0 (12.16) | 339.9 (13.38) | 644.5 (25.37) ⁽²⁾ | 275.4 (10.84) | 225.0 (8.86) | 625.0 (24.61) | 37.19 (82.0) | 42.18 (93.0) |

⁽¹⁾ Refer to the [Drive Frame Size to HP/kW Ratings Cross Reference on page A-31](#) table for frame information.

⁽²⁾ When using the supplied junction box (100 HP drives Only), add an additional 45.1 mm (1.78 in.) to this dimension.

⁽³⁾ Weights include HIM, DriveLogix controller with ControlNet daughtercard, Hi-Resolution Encoder Option, and 20-COMM-C ControlNet adapter.

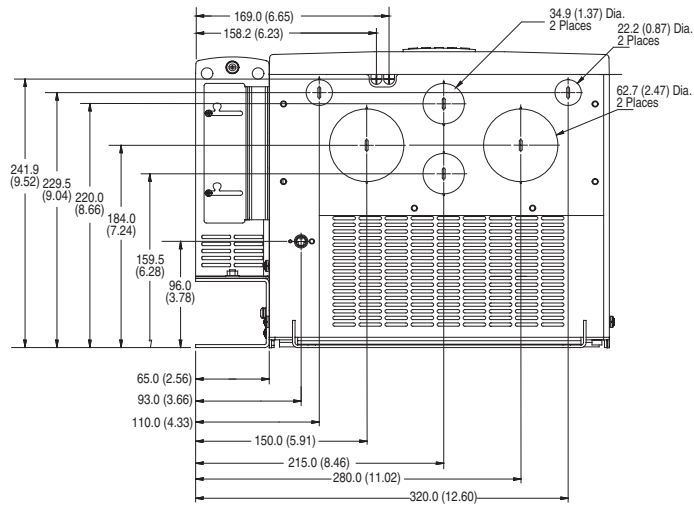
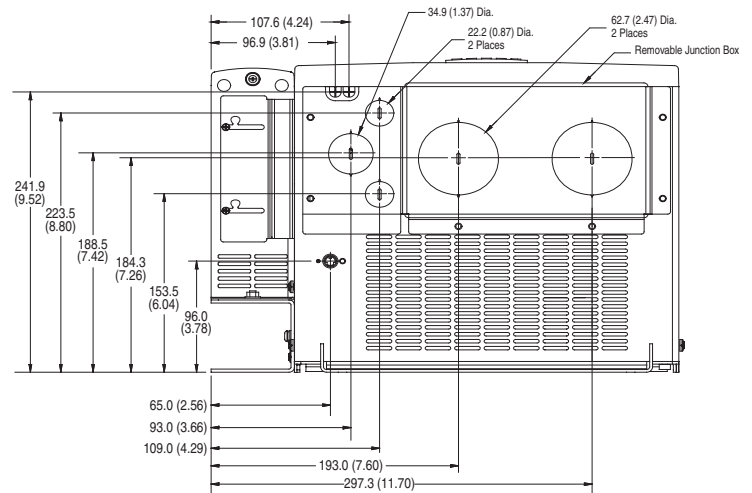
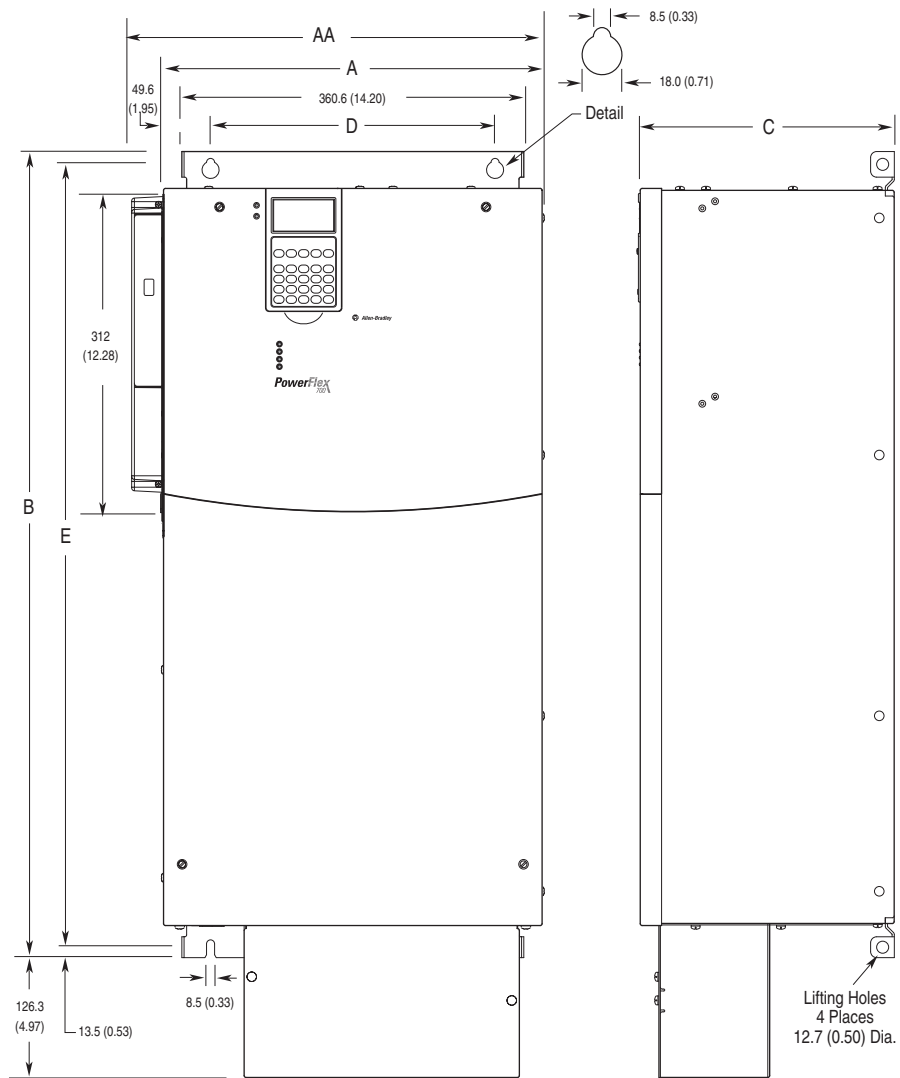
Figure A.6 Frame 5 Bottom View**Frame 5 - 75 HP, 480V (55 kW, 400V) Normal Duty Drive****Frame 5 - 100 HP, 480V (55 kW, 400V) Normal Duty Drive***Dimensions are in millimeters and (inches)*

Figure A.7 Frame 6 Dimensions



Dimensions are in millimeters and (inches)

| Frame ⁽¹⁾ | Slim A (Max.) | Expanded AA | B | C (Max.) | D | E | Approx. Weight ⁽²⁾ kg (lbs.) | |
|----------------------|------------------|----------------|---------------|---------------|---------------|---------------|-----------------------------------------|-------------------|
| | | | | | | | Drive | Drive & Packaging |
| 6 | 403.9 (15.90) | 435.8 (17.16) | 850.0 (33.46) | 275.5 (10.85) | 300.0 (11.81) | 825.0 (32.48) | 71.44 (157.5) ⁽³⁾ | 91.85 (202.5) |

⁽¹⁾ Refer to the [Drive Frame Size to HP/kW Ratings Cross Reference on page A-31](#) table for frame information.

⁽²⁾ Weights include HIM and Standard I/O.

⁽³⁾ Add an additional 3.6 kg (8.00 lbs.) for 200 HP drives.

Figure A.8 Frame 6 Bottom View

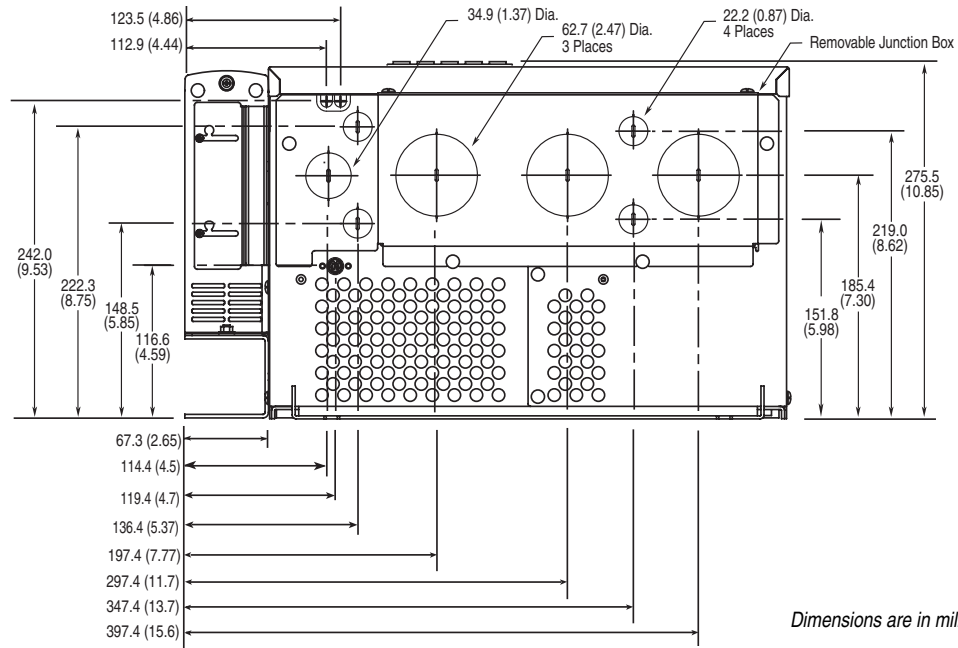


Figure A.9 Frame 9 Dimensions

| A | B | C | D | E |
|------------|--------------|---------------|-------------|--------------|
| 480 (18.9) | 1150 (45.28) | 363.3 (14.32) | 400 (15.75) | 1120 (44.09) |

Dimensions are in millimeters and (inches)

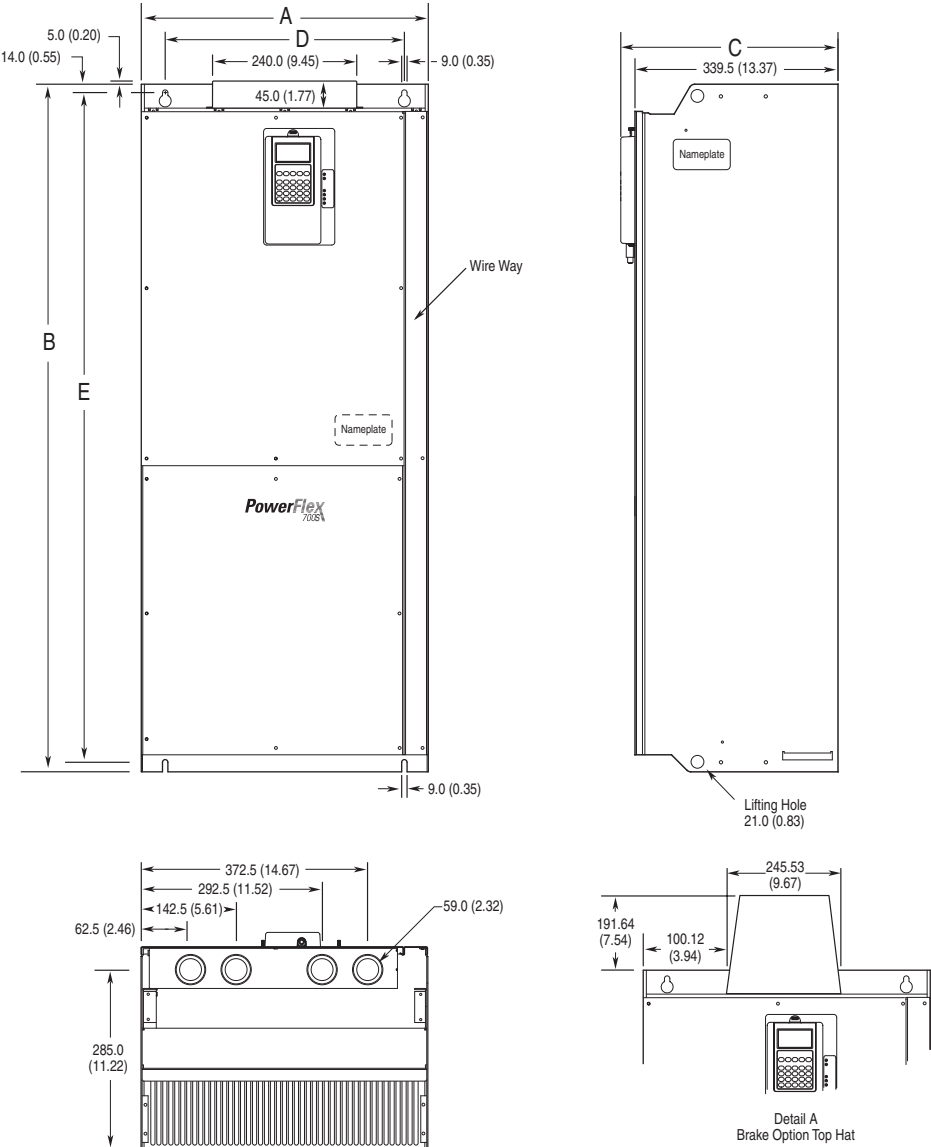


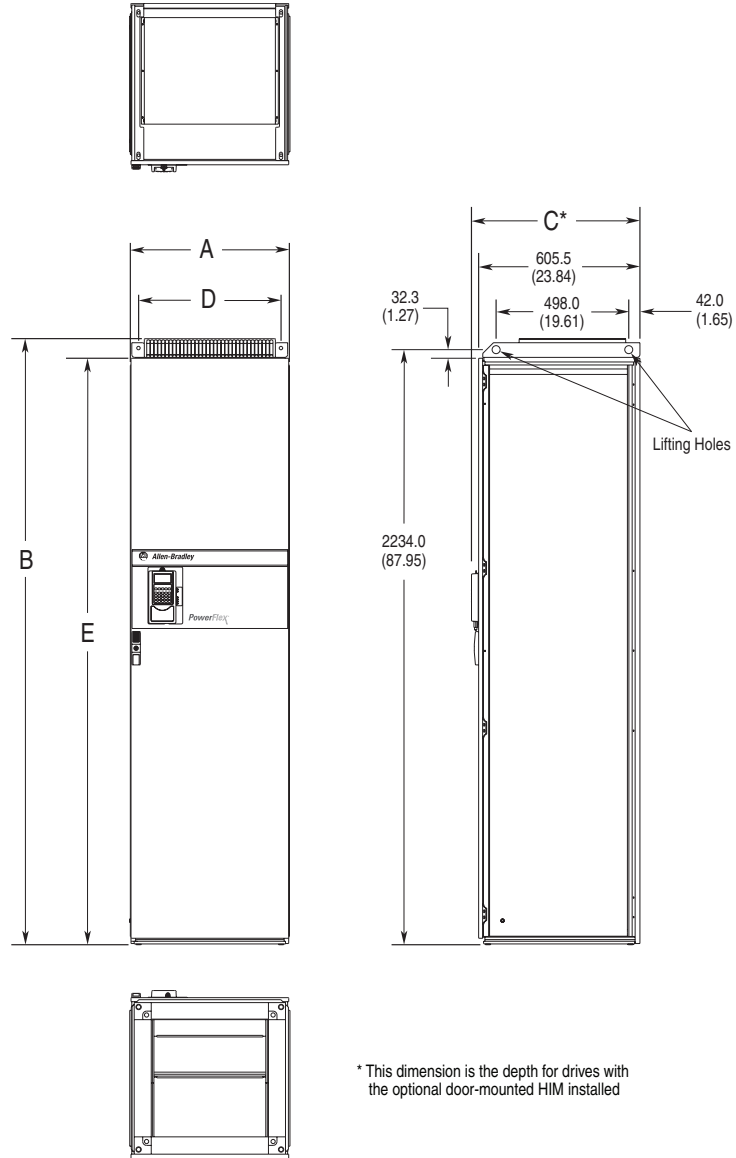
Table A.C Frame 9 Approximate Drive and Enclosure Weights

| Voltage Class | Drive Rating Amps | AC Input Drive & Enclosure Weight kg (lbs.) | AC Input Drive & Packaging Weight kg (lbs.) | DC Input Drive & Enclosure Weight kg (lbs.) | DC Input Drive & Packaging Weight kg (lbs.) |
|---------------------------|-------------------|---------------------------------------------|---------------------------------------------|---------------------------------------------|---------------------------------------------|
| 400/480V AC (540/650V DC) | 261 | 143 (315) | 143 (315) | 109 (240) | 109 (240) |
| 400/480V AC (540/650V DC) | 300 | 151 (333) | 151 (333) | 117 (258) | 117 (258) |
| 600/690V AC (810/932V DC) | 170 | 143 (315) | 143 (315) | 109 (240) | 109 (240) |
| 600/690V AC (810/932V DC) | 208 | 143 (315) | 143 (315) | 109 (240) | 109 (240) |

Figure A.10 Frame 10 Dimensions

| A | B | C | D | E |
|------------|--------------|---------------|---------------|-----------------|
| 597 (23.5) | 2275 (89.57) | 632.45 (24.9) | 534.7 (21.05) | 2201.75 (86.68) |

Dimensions are in millimeters and (inches)



* This dimension is the depth for drives with the optional door-mounted HIM installed

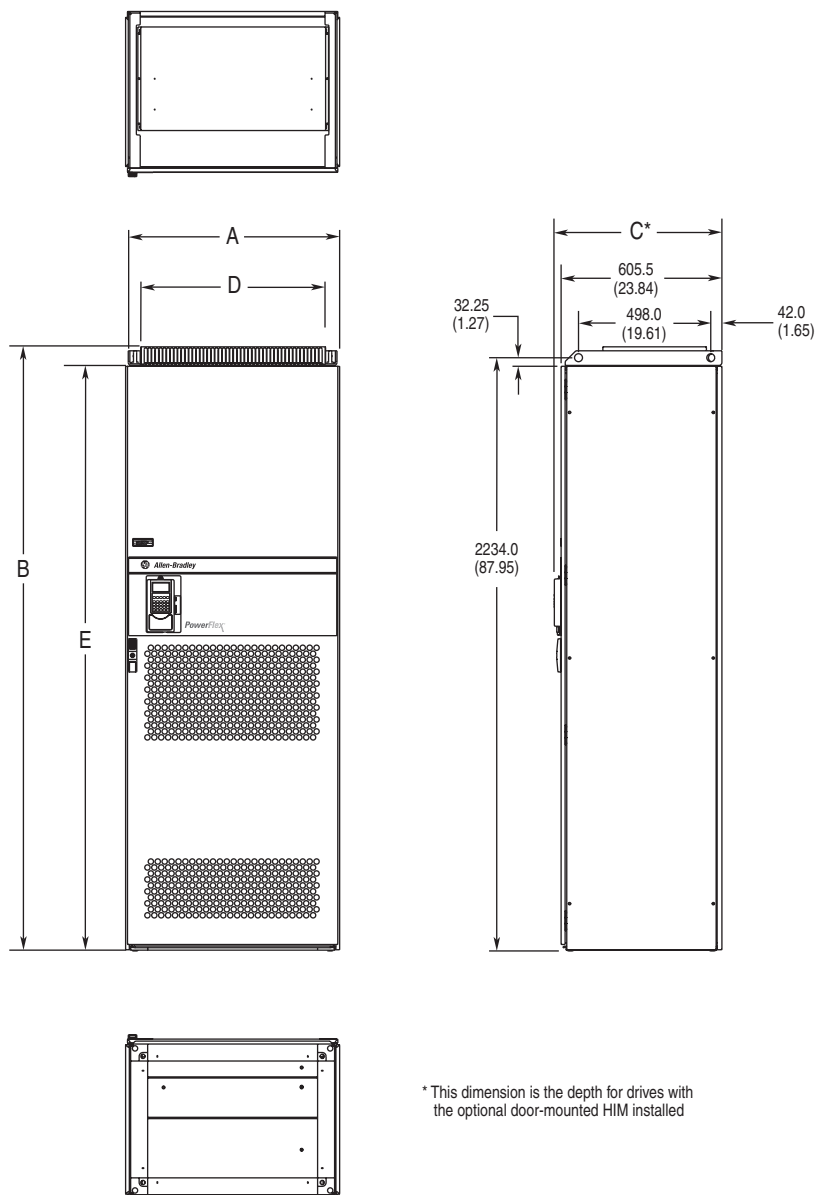
Table A.D Frame 10 Approximate Drive and Enclosure Weights

| Voltage Class | Drive Rating Amps | AC Input Drive & Enclosure Weight kg (lbs.) | AC Input Drive & Packaging Weight kg (lbs.) | DC Input Drive & Enclosure Weight kg (lbs.) | DC Input Drive & Packaging Weight kg (lbs.) |
|---------------------------|-------------------|---------------------------------------------|---------------------------------------------|---------------------------------------------|---------------------------------------------|
| 400/480V AC (540/650V DC) | 385 | 382 (842) | 432 (952) | 267 (589) | 317 (699) |
| | 460 | 382 (842) | 432 (952) | 267 (589) | 317 (699) |
| | 520 | 382 (842) | 432 (952) | 267 (589) | 317 (699) |
| 600/690V AC (810/932V DC) | 261 | 320 (705) | 370 (816) | 267 (589) | 317 (699) |
| | 325 | 351 (774) | 401 (884) | 267 (589) | 317 (699) |
| | 385 | 351 (774) | 401 (884) | 267 (589) | 317 (699) |
| | 416 | 351 (774) | 401 (884) | 267 (589) | 317 (699) |

Figure A.11 Frame 11 Dimensions

| A | B | C | D | E |
|-------------|--------------|----------------|-------------|--------------|
| 797 (31.38) | 2275 (89.57) | 621.74 (24.48) | 736 (28.98) | 2205 (86.81) |

Dimensions are in millimeters and (inches)

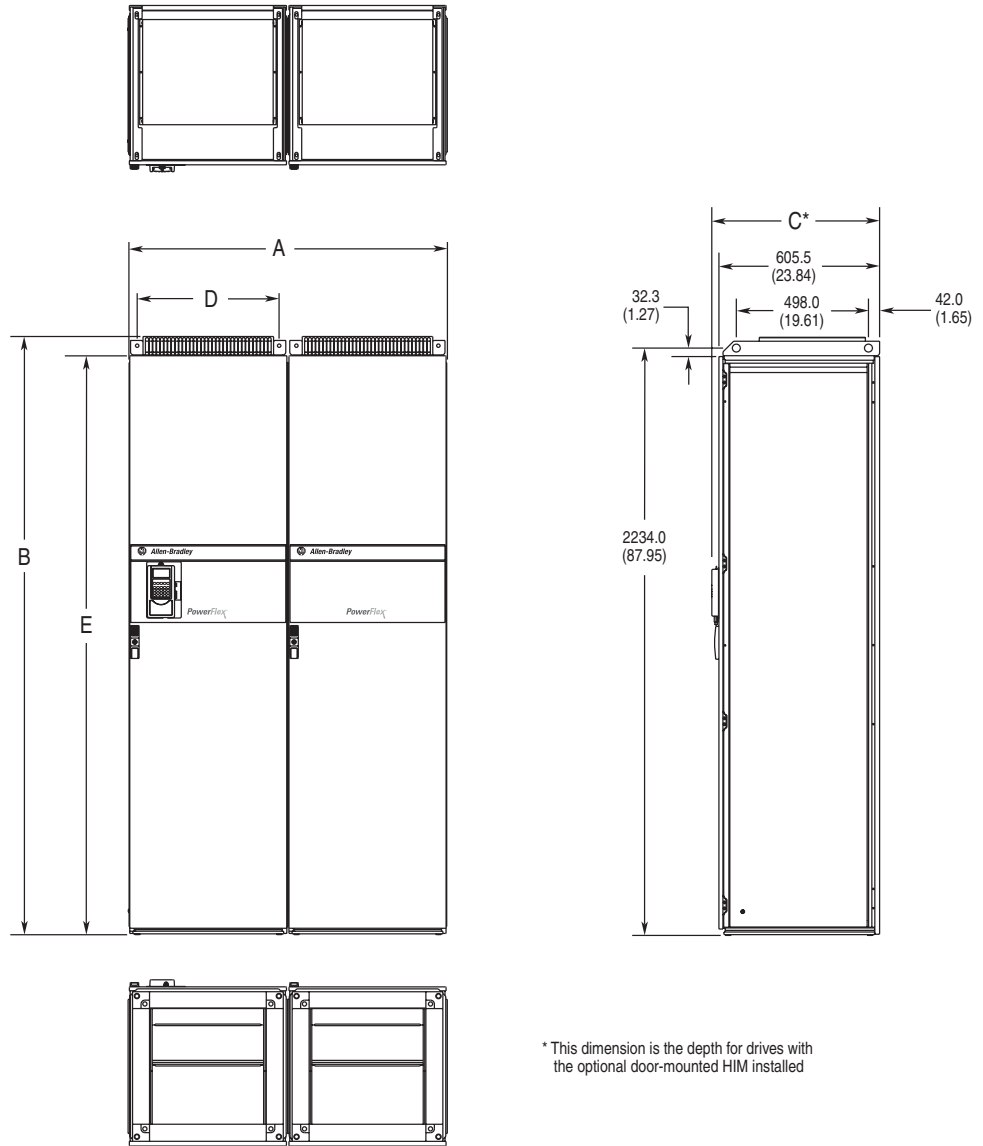
**Table A.E Frame 11 Approximate Drive and Enclosure Weights**

| Voltage Class | Drive Rating Amps | AC Input Drive & Enclosure Weight kg (lbs.) | AC Input Drive & Packaging Weight kg (lbs.) | DC Input Drive & Enclosure Weight kg (lbs.) | DC Input Drive & Packaging Weight kg (lbs.) |
|------------------------------|-------------------|---------------------------------------------|---------------------------------------------|---------------------------------------------|---------------------------------------------|
| 400/480V AC (540/650V DC) | 590 | 564 (1243) | 614 (1354) | 396 (873) | 446 (983) |
| | 650 | 564 (1243) | 614 (1354) | 396 (873) | 446 (983) |
| | 730 | 564 (1243) | 614 (1354) | 396 (873) | 446 (983) |
| 600/690V AC (810/932V DC) | 460 | 511 (1127) | 561 (1237) | 396 (873) | 446 (983) |
| | 502 | 511 (1127) | 561 (1237) | 396 (873) | 446 (983) |
| | 590 | 626 (1380) | 676 (1490) | 396 (873) | 446 (983) |

Figure A.12 Frame 12 Dimensions

| A | B | C | D | E |
|---------------|--------------|--------------|--------------|----------------|
| 1196.1 (47.1) | 2275 (89.57) | 632.5 (24.9) | 534.7 (21.1) | 2201.8 (86.68) |

Dimensions are in millimeters and (inches)



* This dimension is the depth for drives with the optional door-mounted HIM installed

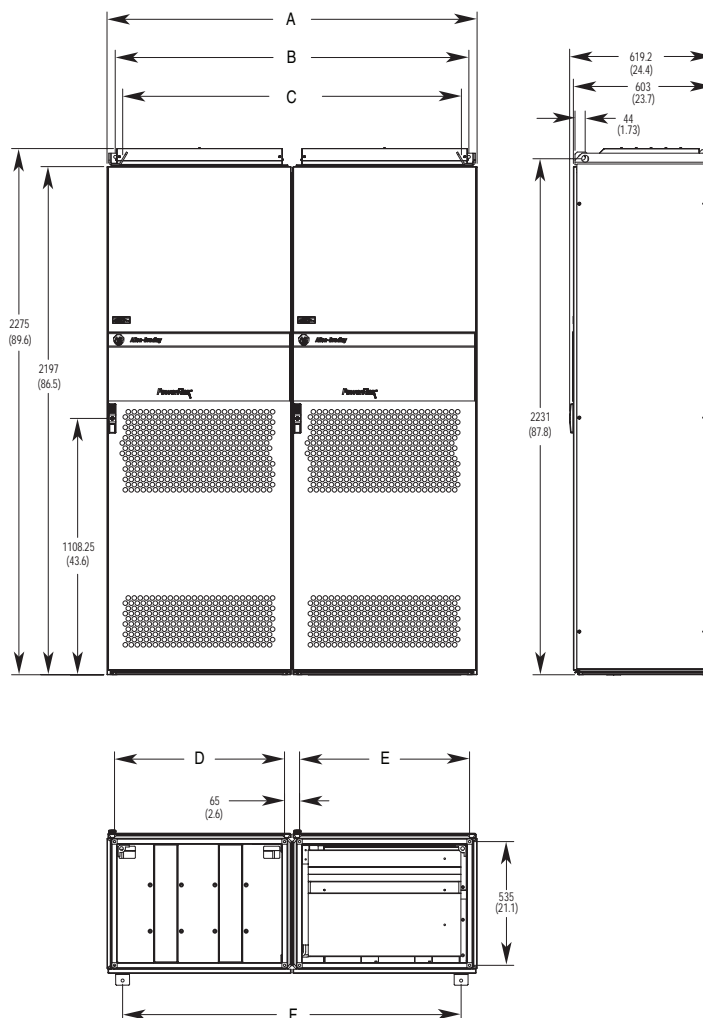
Table A.F Frame 12 Approximate Drive and Enclosure Weights

| Voltage Class | Drive Rating Amps | AC Input Drive & Enclosure Weight kg (lbs.) | AC Input Drive & Packaging Weight kg (lbs.) | DC Input Drive & Enclosure Weight kg (lbs.) | DC Input Drive & Packaging Weight kg (lbs.) |
|------------------------------|-------------------|---------------------------------------------|---------------------------------------------|---------------------------------------------|---------------------------------------------|
| 400/480V AC (540/650V DC) | 820 | 814 (1795) | 864 (1905) | 584 (1287) | 634 (1398) |
| | 920 | 814 (1795) | 864 (1905) | 584 (1287) | 634 (1398) |
| | 1030 | 814 (1795) | 864 (1905) | 584 (1287) | 634 (1398) |
| 600/690V AC (810/932V DC) | 650 | 752 (1658) | 802 (1768) | 584 (1287) | 634 (1398) |
| | 750 | 752 (1658) | 802 (1768) | 584 (1287) | 634 (1398) |
| | 820 | 752 (1658) | 802 (1768) | 584 (1287) | 634 (1398) |

Figure A.13 Frame 13 Dimensions

| Voltage Class | Amps | A | B | C | D | E | F |
|---------------|------|-----------|-----------|-----------|----------|----------|-----------|
| 400V | 1150 | 1412 (56) | 1329 (52) | 1264 (50) | 535 (21) | 735 (29) | 1264 (58) |
| | 1300 | 1600 (63) | 1529 (60) | 1464 (58) | 735 (29) | 735 (29) | 1464 (58) |
| | 1450 | | | | | | |
| 600V | 920 | 1412 (56) | 1329 (52) | 1264 (50) | 535 (21) | 735 (29) | 1264 (50) |
| | 1030 | | | | | | |
| | 1180 | | | | | | |

Dimensions are in millimeters and (inches)

**Table A.G Frame 13 Approximate Drive and Enclosure Weights**

| Voltage Class | Drive Rating Amps | AC Input Drive & Enclosure Weight kg (lbs.) | AC Input Drive & Packaging Weight kg (lbs.) | DC Input Drive & Enclosure Weight kg (lbs.) | DC Input Drive & Packaging Weight kg (lbs.) |
|---------------------------|-------------------|---------------------------------------------|---------------------------------------------|---------------------------------------------|---------------------------------------------|
| 400/480V AC (540/650V DC) | 1150 | 1348 (2972) | 1468 (3236) | 600 (1323) | 720 (1587) |
| | 1300 | 1400 (3086) | 1520 (3351) | 600 (1323) | 720 (1587) |
| | 1450 | 1400 (3086) | 1520 (3351) | 600 (1323) | 720 (1587) |
| 600/690V AC (810/932V DC) | 920 | 1248 (2751) | 1368 (3016) | 600 (1323) | 720 (1587) |
| | 1030 | 1248 (2751) | 1368 (3016) | 600 (1323) | 720 (1587) |
| | 1180 | 1248 (2751) | 1368 (3016) | 600 (1323) | 720 (1587) |

Control Block Diagrams

List of Control Block Diagrams

Flow diagrams on the following pages illustrate the drives' control algorithms.

| For Information on ... | See Page... |
|------------------------------------------|----------------------|
| Overview | B-3 |
| Speed Control - Reference Select | B-4 |
| Speed Control - Reference | B-5 |
| Speed Control - Regulator | B-6 |
| Process Control | B-7 |
| Torque Control - Torque | B-8 |
| Torque Control - Current | B-9 |
| Speed/Position Feedback | B-10 |
| Inputs & Outputs - Digital | B-11 |
| Inputs & Outputs - Analog | B-12 |
| Control Logic | B-13 |
| Position Control - Interp/Direct | B-14 |
| Position Control - Point-to-Point | B-15 |
| Position Control - Auxiliary/Control | B-16 |
| Point-To-Point Motion Planner | B-17 |
| Phase Lock Loop | B-18 |
| Virtual Master Encoder | B-19 |
| User Functions 1 | B-20 |
| User Functions 2 | B-21 |
| Synchlink | B-22 |
| V/Hz | B-23 |
| Diagnostic Tools | B-24 |
| Inverter Overload IT | B-25 |
| DriveLogix Connection - Speed Control | B-26 |
| DriveLogix Connection - Position Control | B-27 |
| DriveLogix Connection - Motion Control | B-28 |

Diagram Conventions and Definitions

Definitions of the Per Unit system
1.0 PU Position = Distance traveled / 1sec at Base Spd
1.0 PU Speed = Base Speed of the Motor
1.0 PU Torque = Base Torque of the Motor

Symbols:

Read Only Parameter

Read / Write Parameter

Read Only Parameter with Bit Enumeration

Read / Write Parameter with Bit Enumeration

Provides additional information

() = Enumerated Parameter

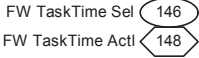
[] = Page and Coordinate

ex. 3A2 = pg 3, Column A, Row 2

= Constant value

Processor Task time selection

NOTE: Faster Task time selections may require program functions to be disabled to stay within processor load capabilities.



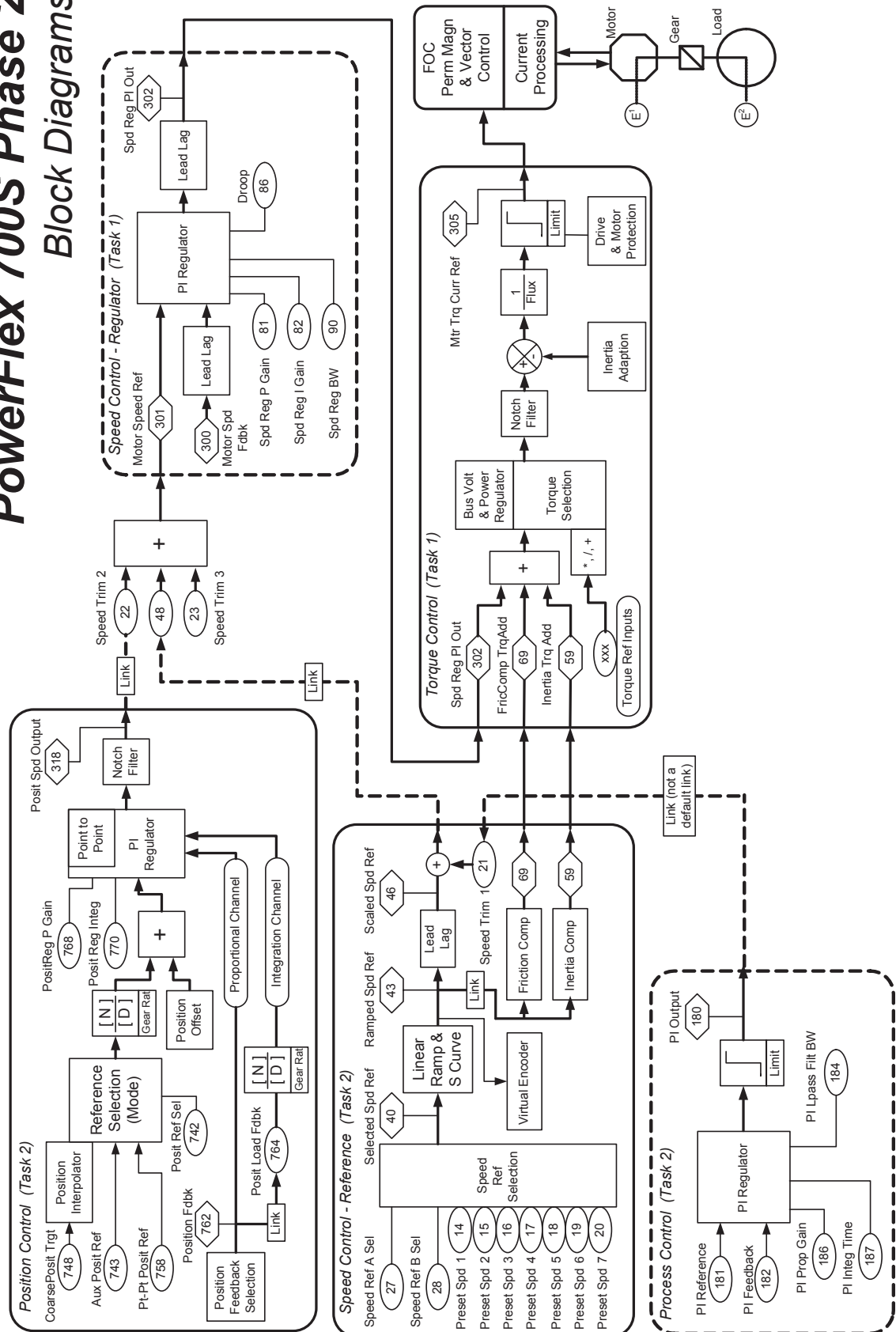
| | val = 0 | val = 1 | val = 2 |
|--------|---------|---------|---------|
| Task 1 | 0.5 mS | 0.5 mS | 0.25 mS |
| Task 2 | 2.0 mS | 1.0 mS | 1.0 mS |
| Task 3 | 8.0 mS | 8.0 mS | 8.0 mS |

* Notes, Important:

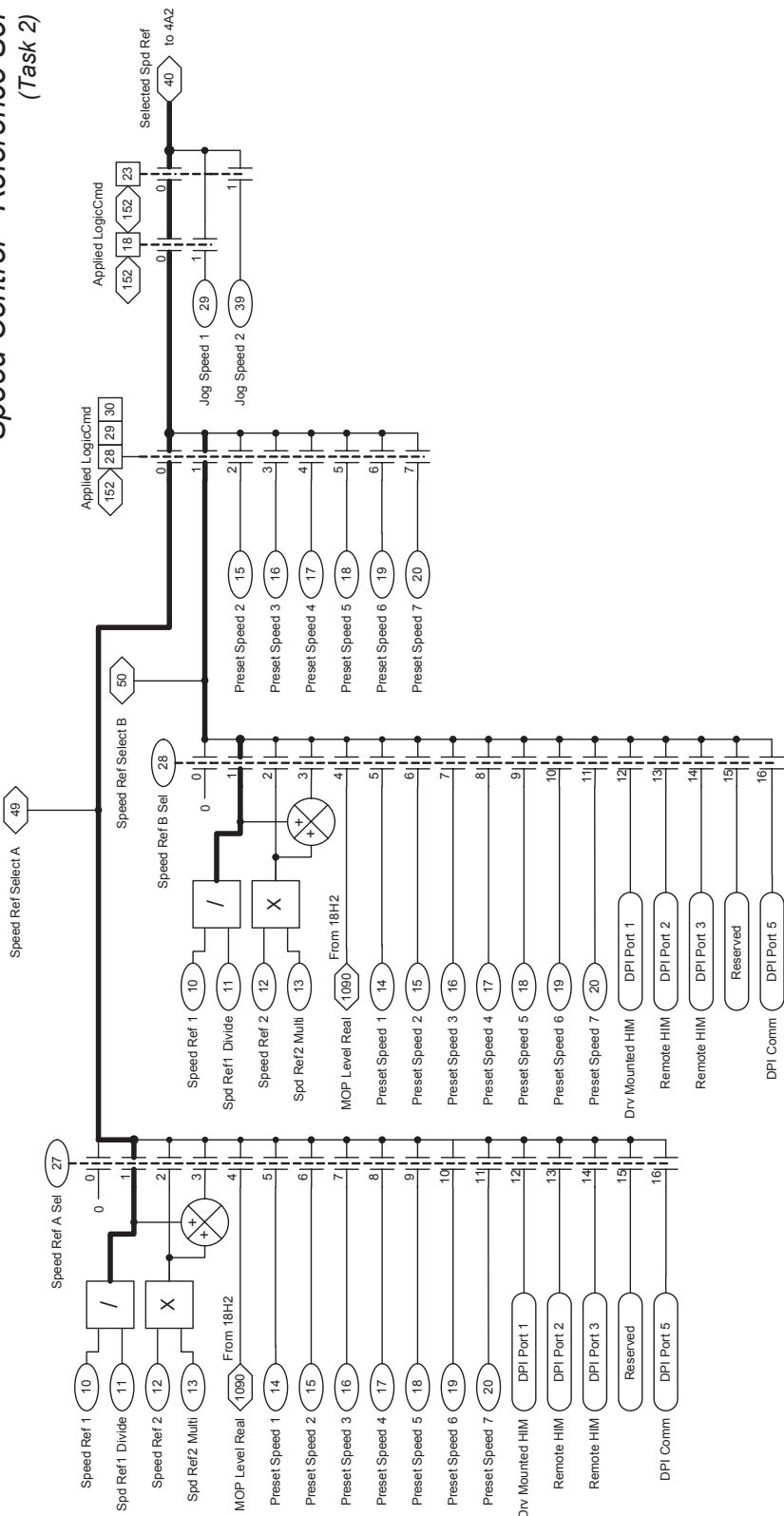
- (1) Parameter 147 [FW Functions En] is used to activate and deactivate firmware functions. The PowerFlex 700S drive ships with the position regulator deactivated. **To enable the position regulator set p147b16 on.**
- (2) Parameter 1000 [UserFunct Enable] is used to activate and deactivate the User Functions.
- (3) These diagrams are for reference only and may not accurately reflect all logical control signals; actual functionality is implied by the approximated diagrams. Accuracy of these diagrams is not guaranteed.

PowerFlex 700S Phase 2

Block Diagrams



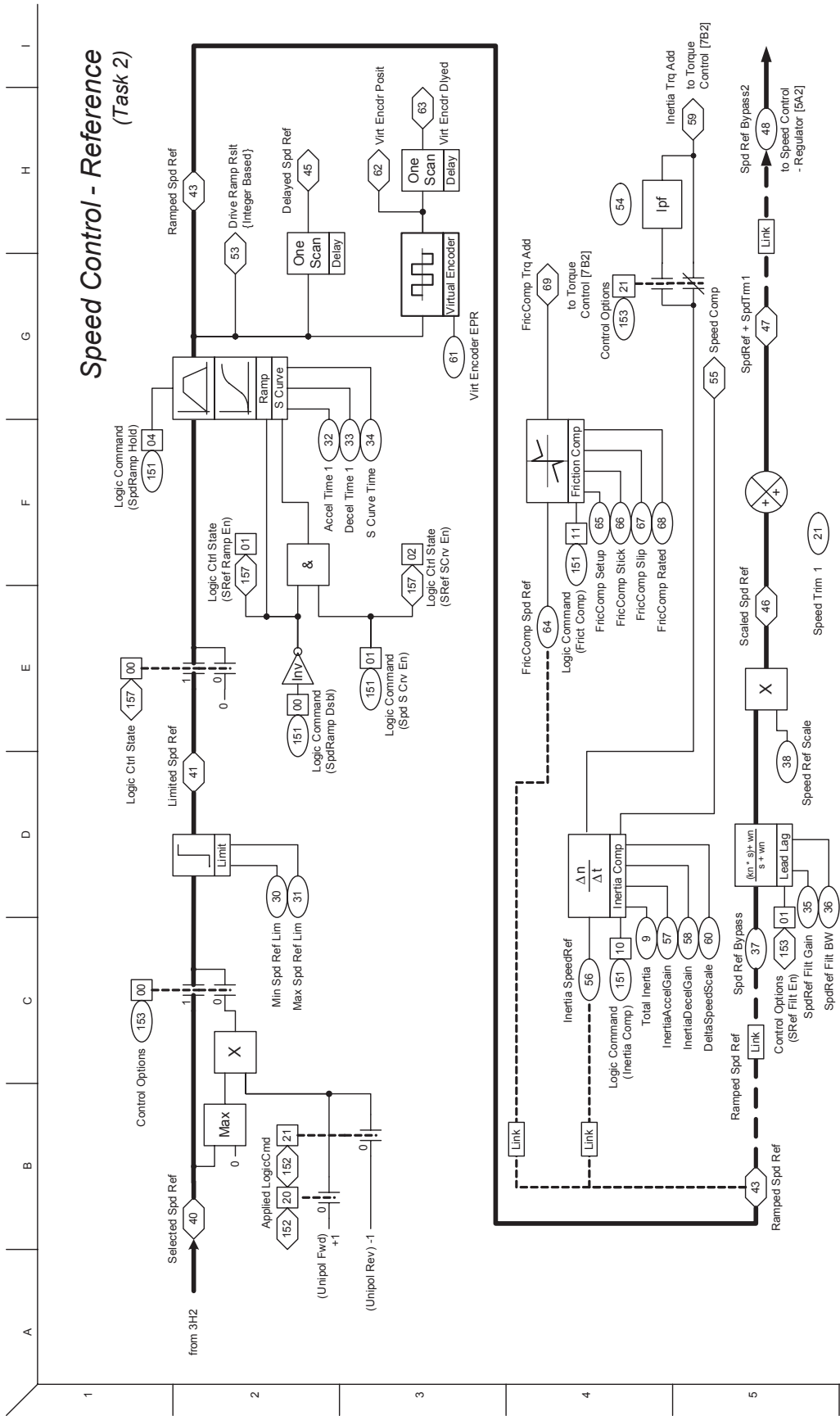
Speed Control - Reference Sel (Task 2)



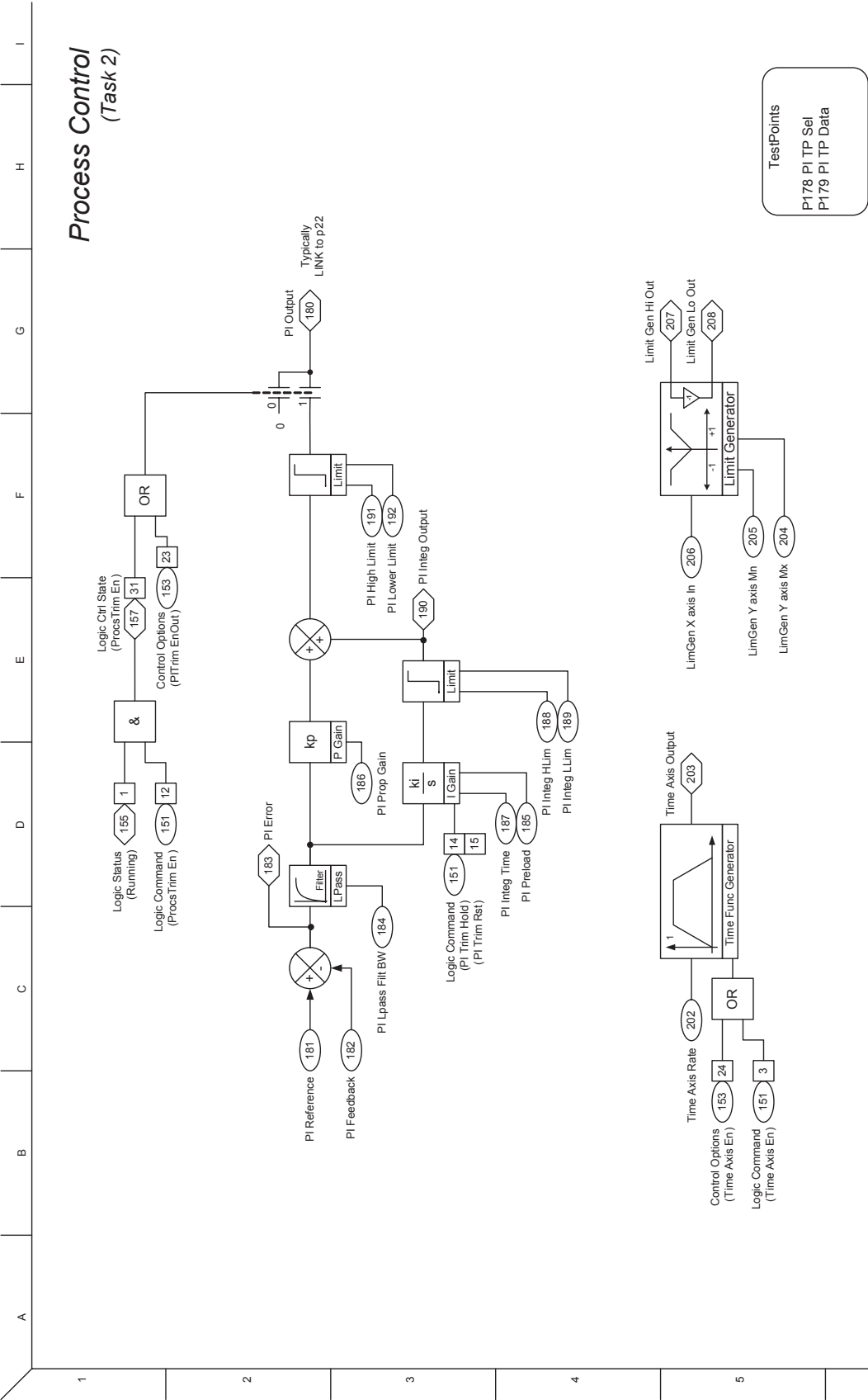
TestPoints

P77 Spd Ref TP Sel
P78 Spd Ref TP RPM
P79 Spd Ref TP Data

Speed Control - Reference
(Task 2)



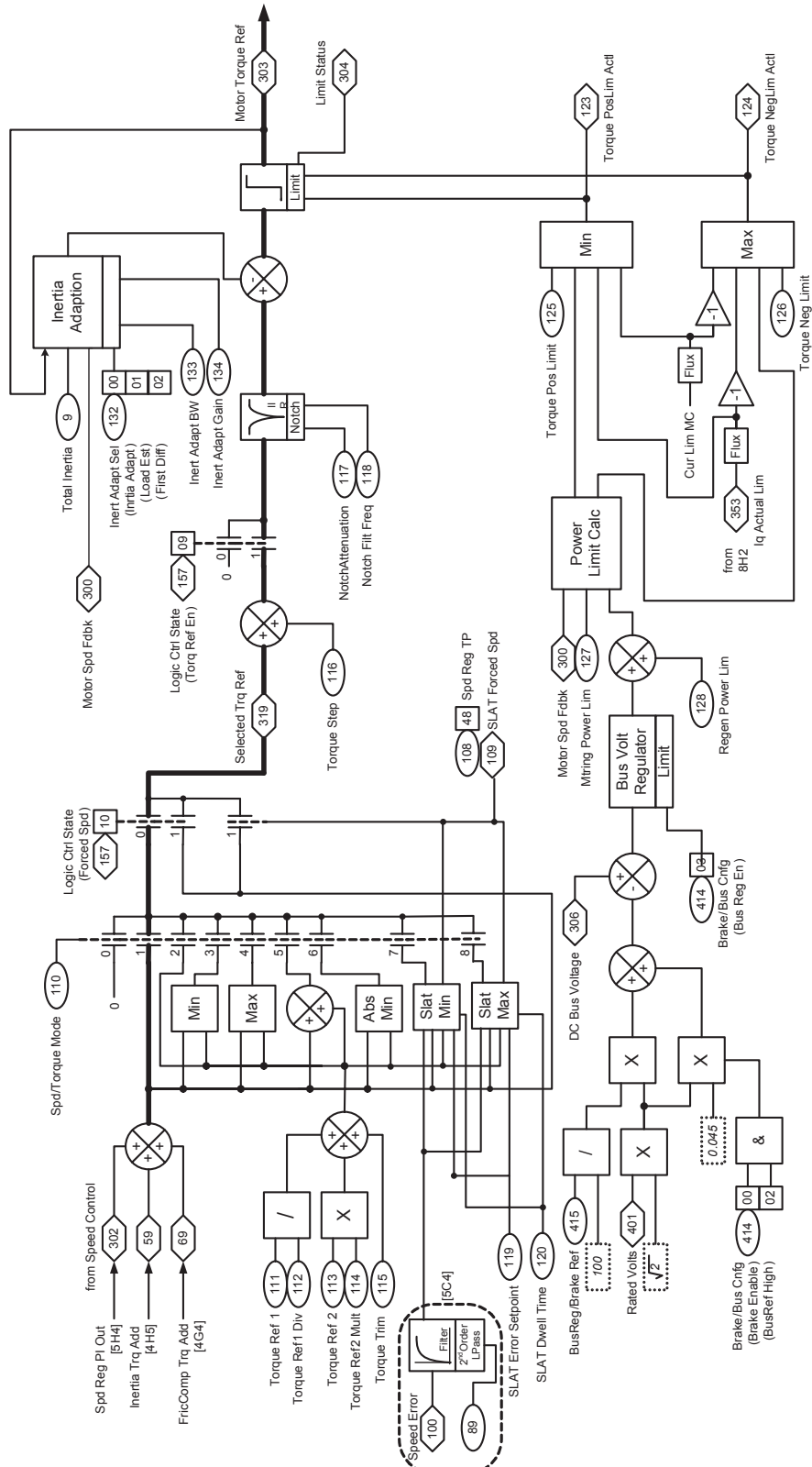
Process Control
(Task 2)



Torque Control - Torque (Task 1)

TestPoints

P130 Trq Ref TP Sel
P131 Trq Ref TP Data



Torque Control - Current (Task 1)

The diagram illustrates the Torque Control - Current system, showing the flow of signals and the logic for current limiting and feedback.

Key Components and Signals:

- Motor Torque Ref (303):** The primary reference signal for torque.
- Control Options (Trq Trim En) (153):** A control option that can be enabled (1) or disabled (0).
- Motor Flux Est (359):** The estimated motor flux, which is the integral of the motor flux derivative.
- Calc Flux (309):** The calculated flux, which is the sum of the motor flux estimate and the flux feedback.
- % Motor Flux (309):** The percentage of motor flux, which is the ratio of the calculated flux to the motor flux estimate.
- Flx LpassFilt BW (361):** The bandwidth of the flux low-pass filter.
- Min Flux (360):** The minimum flux limit, which is 1.0.
- Motor Flux Ref (303):** The reference motor flux, which is the sum of the motor torque reference and the flux feedback.
- Logic Ctrl State (CurrRef En) (11):** A control option that can be enabled (1) or disabled (0).
- Iq Actual Ref (350):** The actual reference current, which is the sum of the motor torque reference and the flux feedback.
- Iq Ref Trim (351):** The reference current trim, which is 0.0.
- Torque NegLim Actl (124):** The negative torque limit, which is 1.02.
- Torque PosLim Actl (123):** The positive torque limit, which is 1.02.
- Limit (304):** A limit block that limits the reference current.
- Rate Lim (355):** A rate limit block that limits the reference current.
- Iq Ref Limited (355):** The limited reference current, which is the output of the rate limit block.
- Iq Delay Option (305):** A delay option block that delays the reference current.
- Mtr Trq Curr Ref (305):** The motor torque current reference, which is the output of the delay option block.
- Iq Actual Lim (352):** The actual current limit, which is the output of the limit block.
- Iq Actual Lim (353):** The actual current limit, which is the output of the rate limit block.
- OL ClsLp CurrLim (344):** The closed-loop current limit, which is the output of the limit block.
- OL OpnLp CurrLim (343):** The open-loop current limit, which is the output of the limit block.
- Min (343):** A minimum block that limits the reference current.
- Is Actual Lim (352):** The actual current limit, which is the output of the limit block.
- Is Actual Lim (353):** The actual current limit, which is the output of the rate limit block.
- IT-openloop:** The open-loop current limit, which is the output of the limit block.
- IT-closedloop:** The closed-loop current limit, which is the output of the limit block.
- Control Options (OL ClsLpDshl) (13):** A control option that can be enabled (1) or disabled (0).
- Drive OL JnctTemp (345):** The junction temperature of the drive.
- Heatsink Temp (313):** The heatsink temperature.
- Drive OL Status (346):** The drive open-loop status.
- Flux Current* (488):** The flux current, which is the output of the flux feedback block.
- MotorFluxCurr FB (312):** The motor flux current feedback, which is the output of the flux feedback block.
- Mtr Current Lim (356):** The motor current limit, which is the output of the limit block.
- Max = inverter 3 sec rating:** The maximum current limit, which is the output of the limit block.
- Output Current (308):** The output current, which is the output of the current limit block.
- Motor NP FLA (2):** The motor nominal full-load current, which is the output of the current limit block.
- pu Stator Current Fdbk from Motor Control:** The per-unit stator current feedback from the motor control.

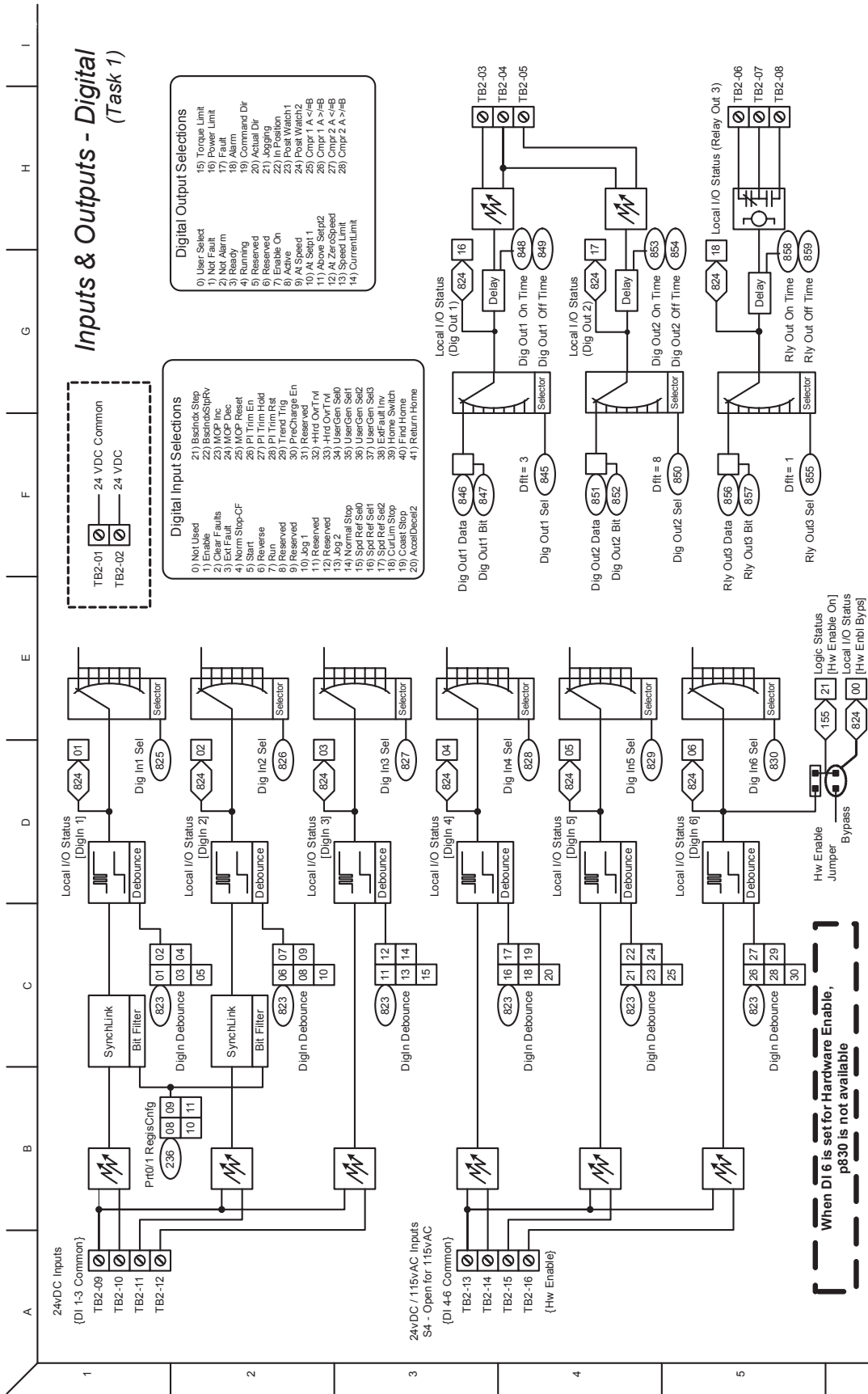
TestPoints

- * Calculated by Autotune (may be overwritten)
- P357 Curr Ref TP Sel
- P358 Curr Ref TP Data

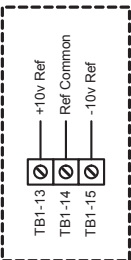
* Calculated by Autotune
(may be overwritten)

TestPoints
P357 Curr Ref TP Sel
P358 Curr Ref TP Data

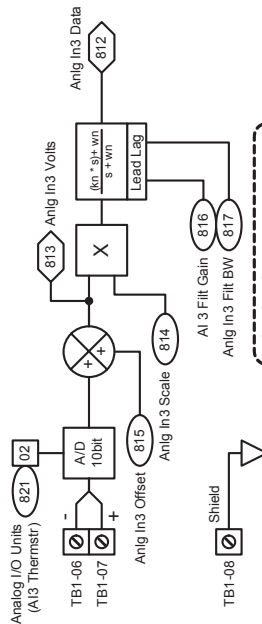
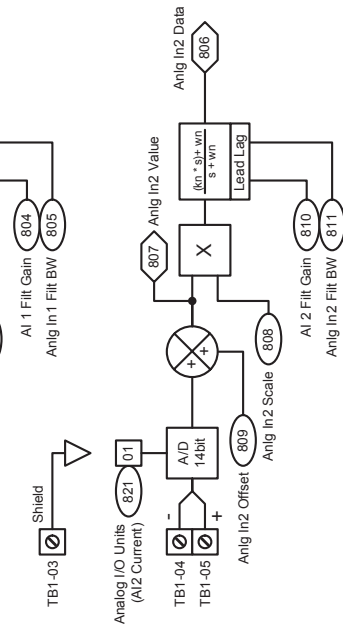
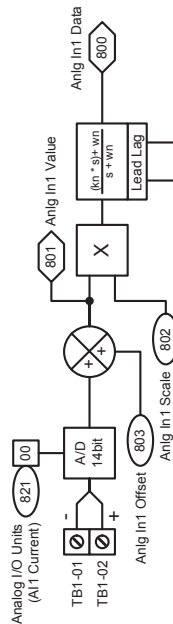
Inputs & Outputs - Digital
(Task 1)



Inputs & Outputs - Analog (Task 1)

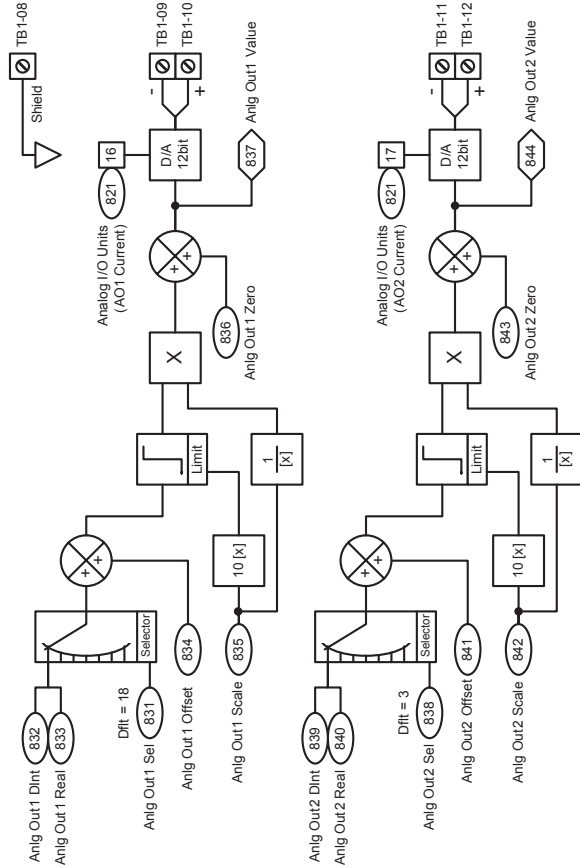


- Analog Output Selections**
- | User Defined | User Select |
|-----------------------|----------------------|
| P301 Motor Speed Ref | 0) User Select |
| P302 Motor Speed Ref | 1) Output Freq |
| P303 Motor Torque Ref | 2) Set Spd Ref |
| P304 Motor Torque Ref | 3) Set Spd Ref |
| P305 Motor Torque Ref | 4) Trq Cur (Iq) |
| P306 Motor Torque Ref | 5) % Motor Flux |
| P307 Motor Torque Ref | 6) Motor Power |
| P308 Motor Torque Ref | 7) Output Power |
| P309 Motor Torque Ref | 8) Output Volts |
| P310 Motor Torque Ref | 9) DC Bus Volts |
| P311 Motor Torque Ref | 10) Reference |
| P312 Motor Torque Ref | 11) Feedback |
| P313 Motor Torque Ref | 12) PI Error |
| P314 Motor Torque Ref | 13) Reserved |
| P315 Motor Torque Ref | 14) Reserved |
| P316 Motor Torque Ref | 15) Motor Torque Ref |
| P317 Motor Torque Ref | 16) Motor Torque Ref |
| P318 Motor Torque Ref | 17) Speed Ref |
| P319 Motor Torque Ref | 18) Speed Ref |
| P320 Motor Torque Ref | 19) Speed Ref |
| P321 Motor Torque Ref | 20) Spd Spd Fdbk |
| P322 Motor Torque Ref | 21) Ramped Spd Ref |
| P323 Motor Torque Ref | 22) Spd Reg Out |
| P324 Motor Torque Ref | 23) MOP Level |
| P325 Motor Torque Ref | 24) Trend 1 Dint |
| P326 Motor Torque Ref | 25) Trend 1 Real |
| P327 Motor Torque Ref | 26) Trend 2 Dint |
| P328 Motor Torque Ref | 27) Trend 2 Real |

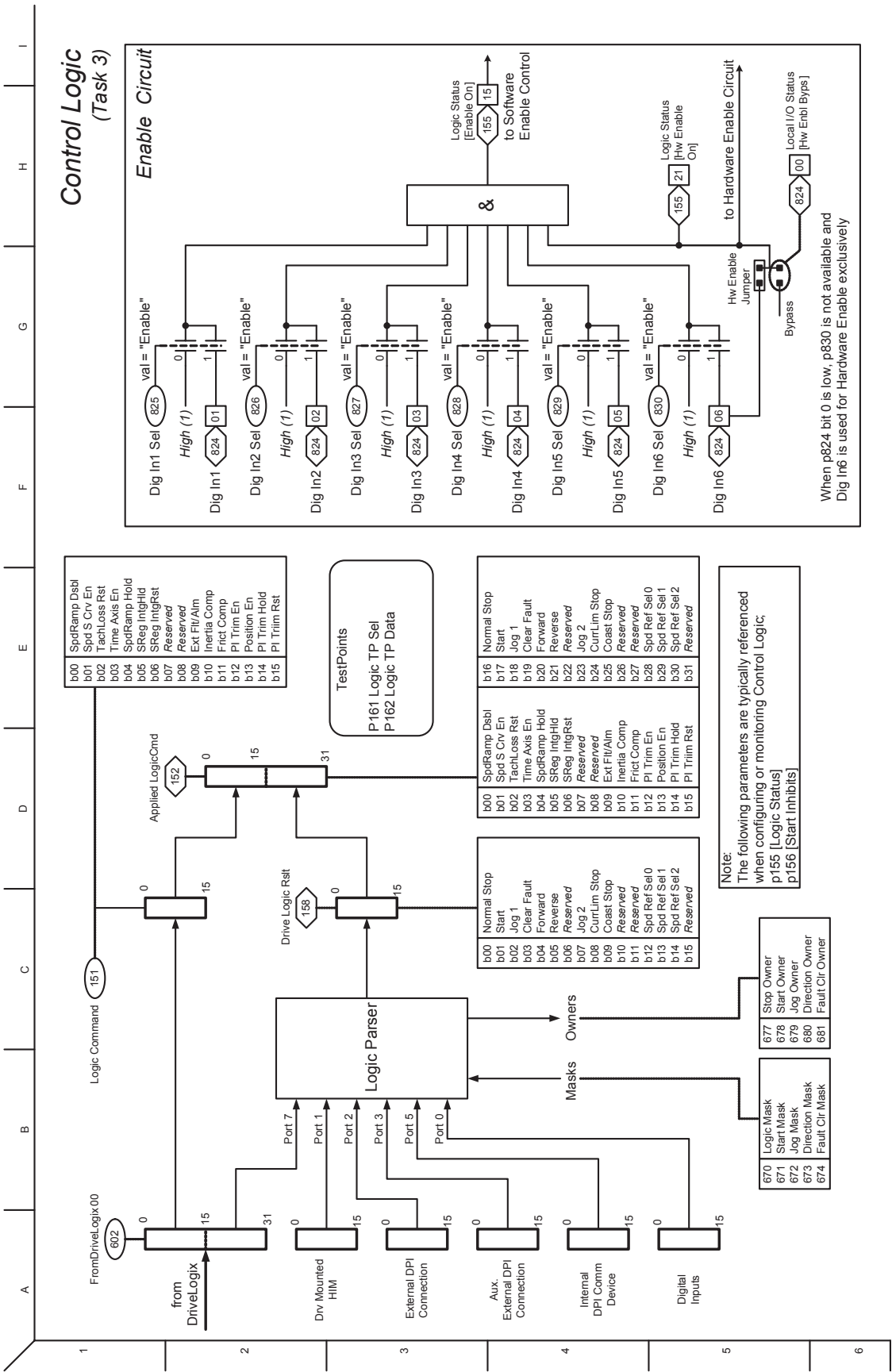


Analog Input Filter Settings

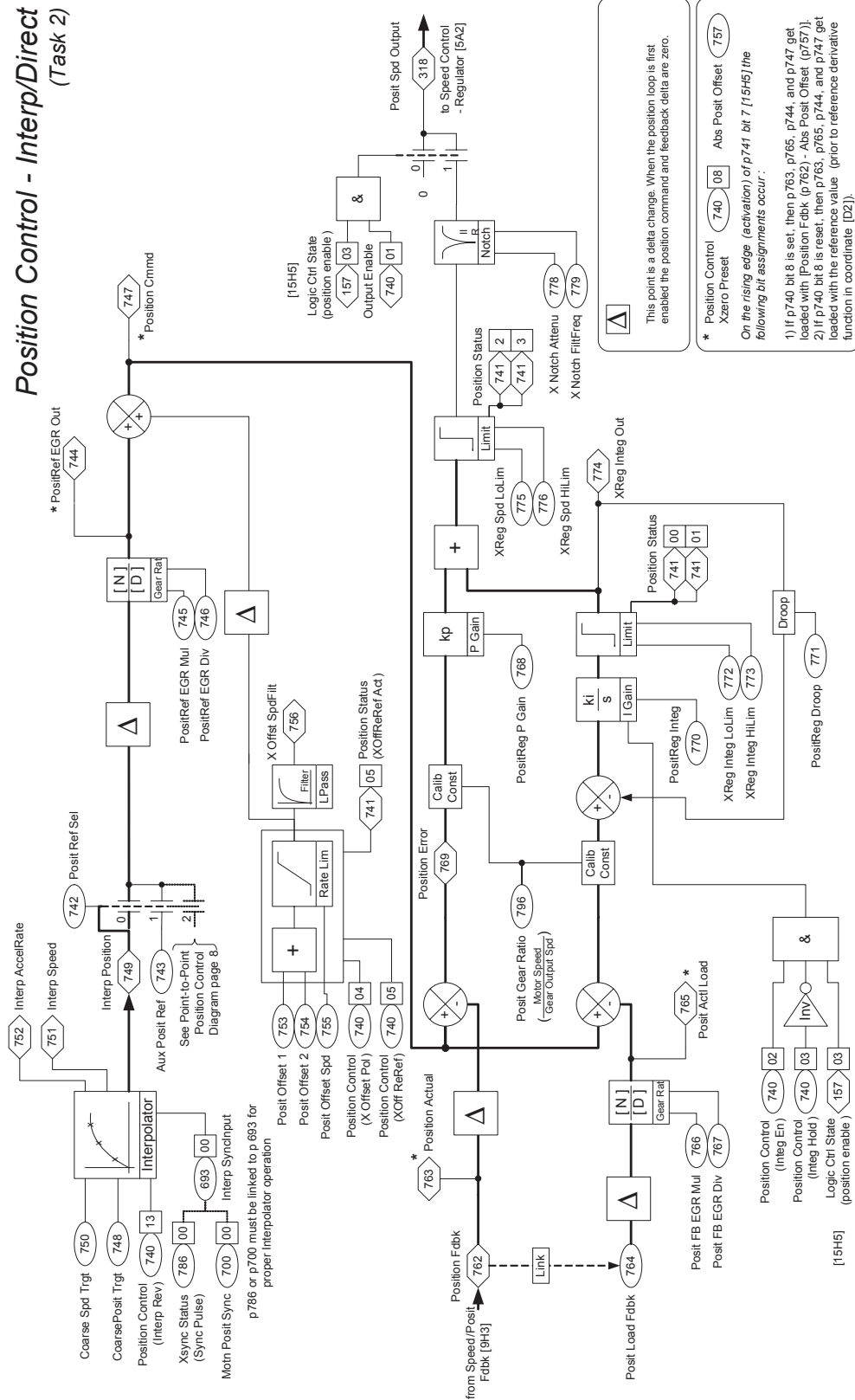
| Light Filter | Gain | BW |
|--------------|------|----|
| 0.25 | 0.1 | 50 |
| Heavy Filter | 0.1 | 10 |



Control Logic
(Task 3)



Position Control - Interp/Direct (Task 2)



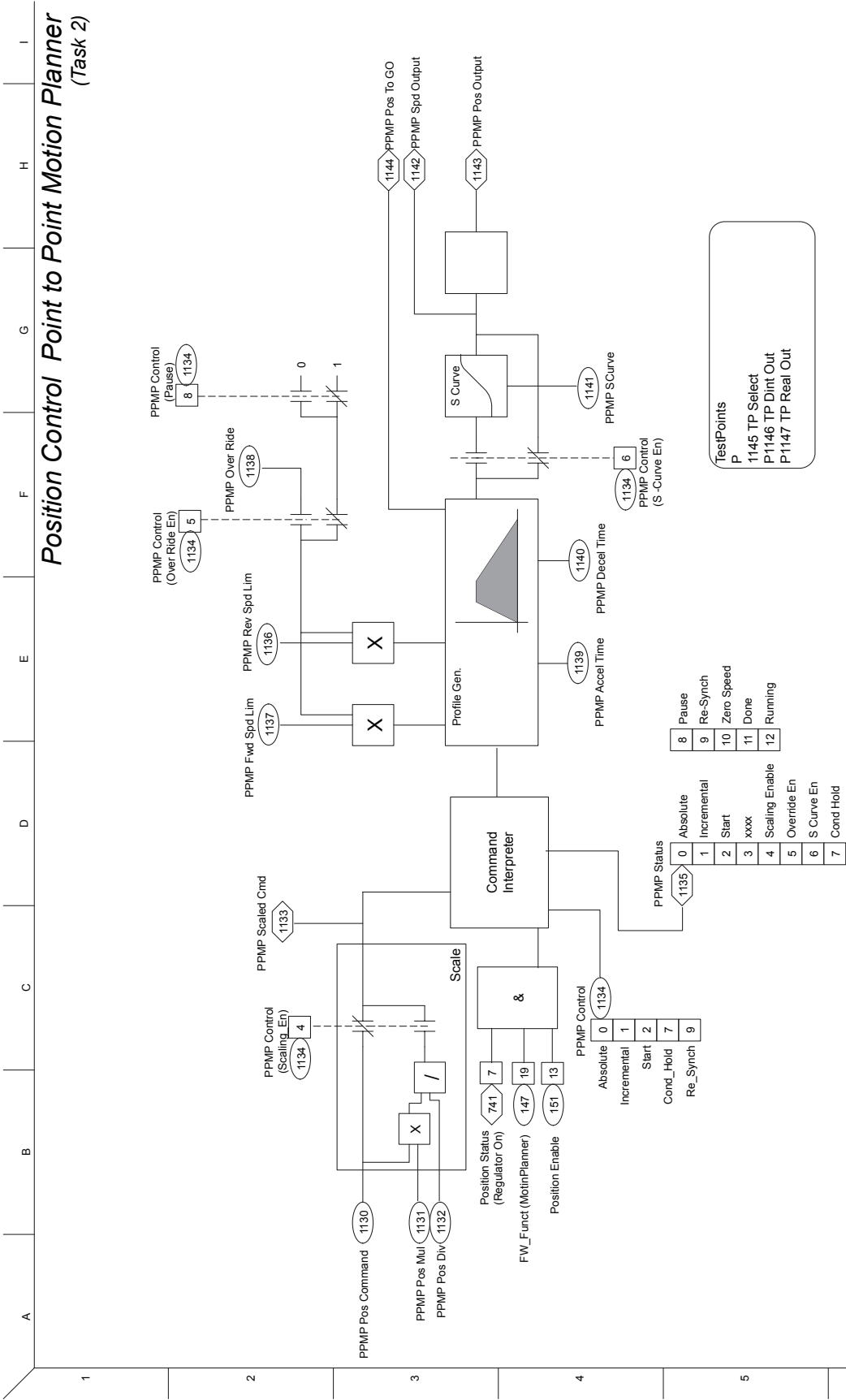
Position Control - Interp/Direct (Task 2)

This point is a delta change. When the position loop is first enabled the position command and feedback delta are zero.

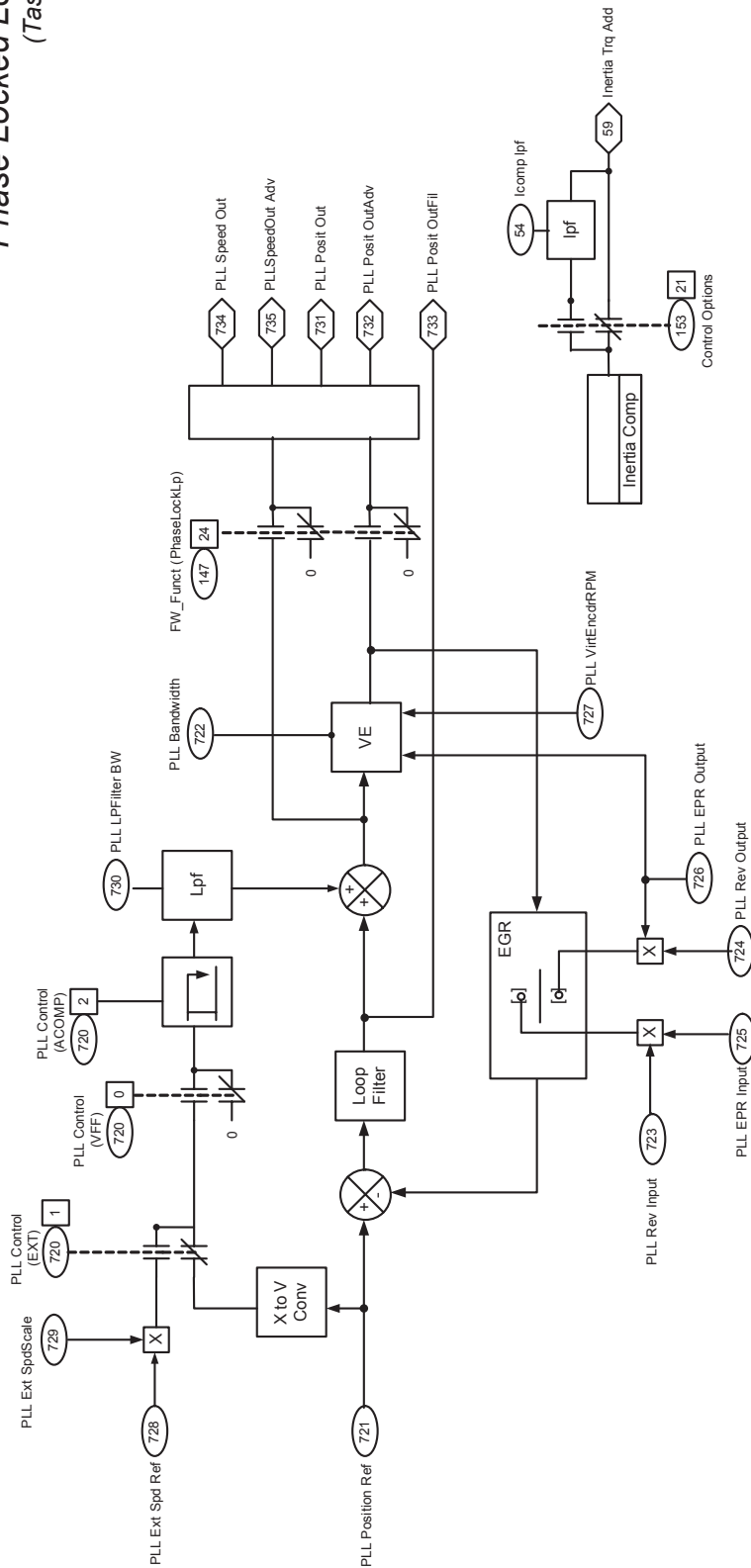
*** Position Control**
Zero Preset (740) Abs Posit Offset (757)
On the rising edge (activation) of p741 bit 7 [15H5] the following bit assignments occur:

- 1) If p740 bit 8 is set, then p763, p765, p744, and p747 get loaded with [Position Fdbk (p762) - Abs Posit Offset (p757)].
- 2) If p740 bit 8 is reset, then p763, p765, p744, and p747 get loaded with the reference value (prior to reference derivative function in coordinate [D2]).

(Task 2)



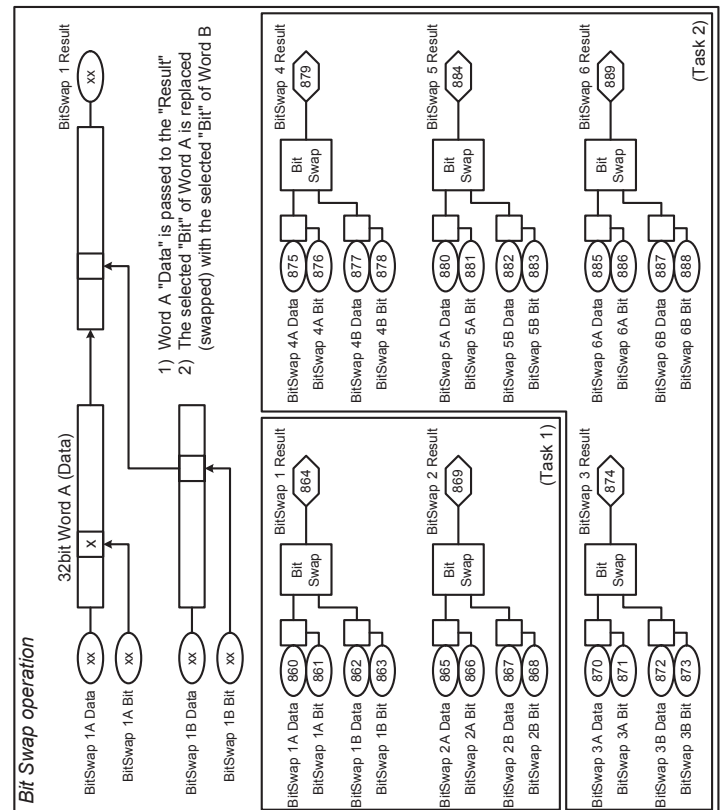
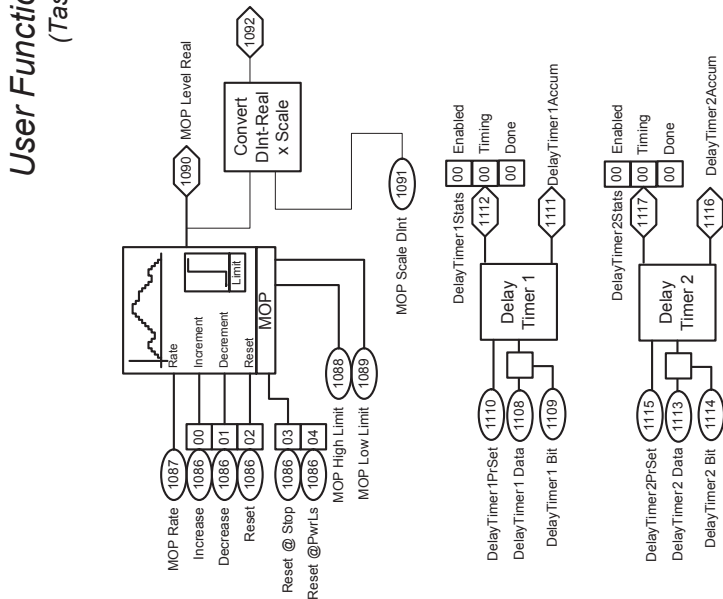
Phase Locked Loop (Task 1)

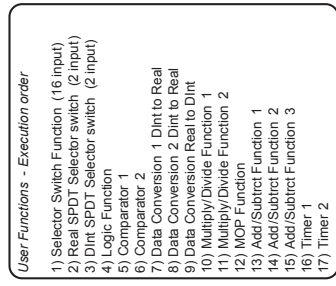


Test Points
P717 – PLL TP Select
P718 – PLL DataInt
P719 – PLL DataReal



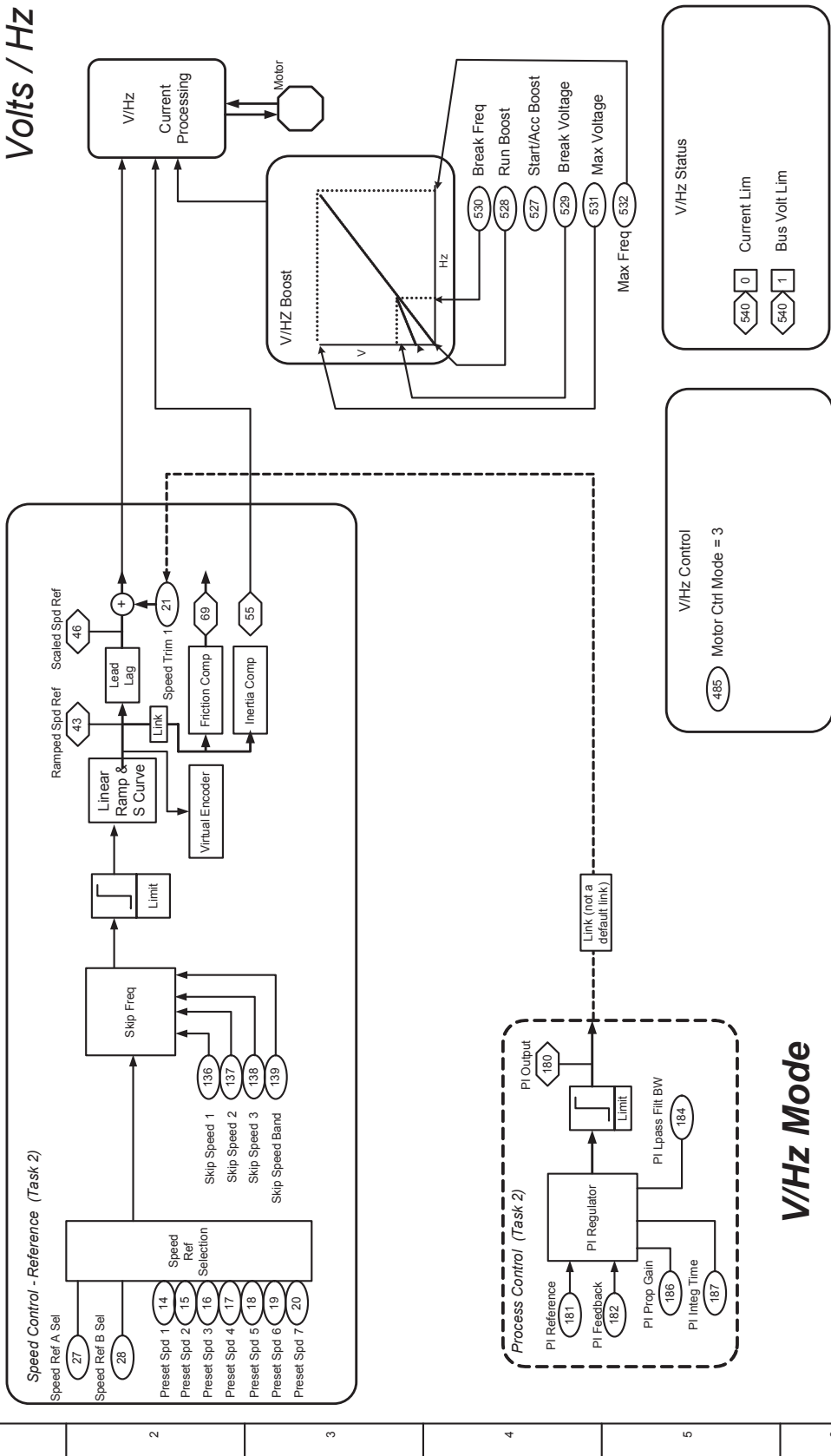
User Functions
(Task 3)



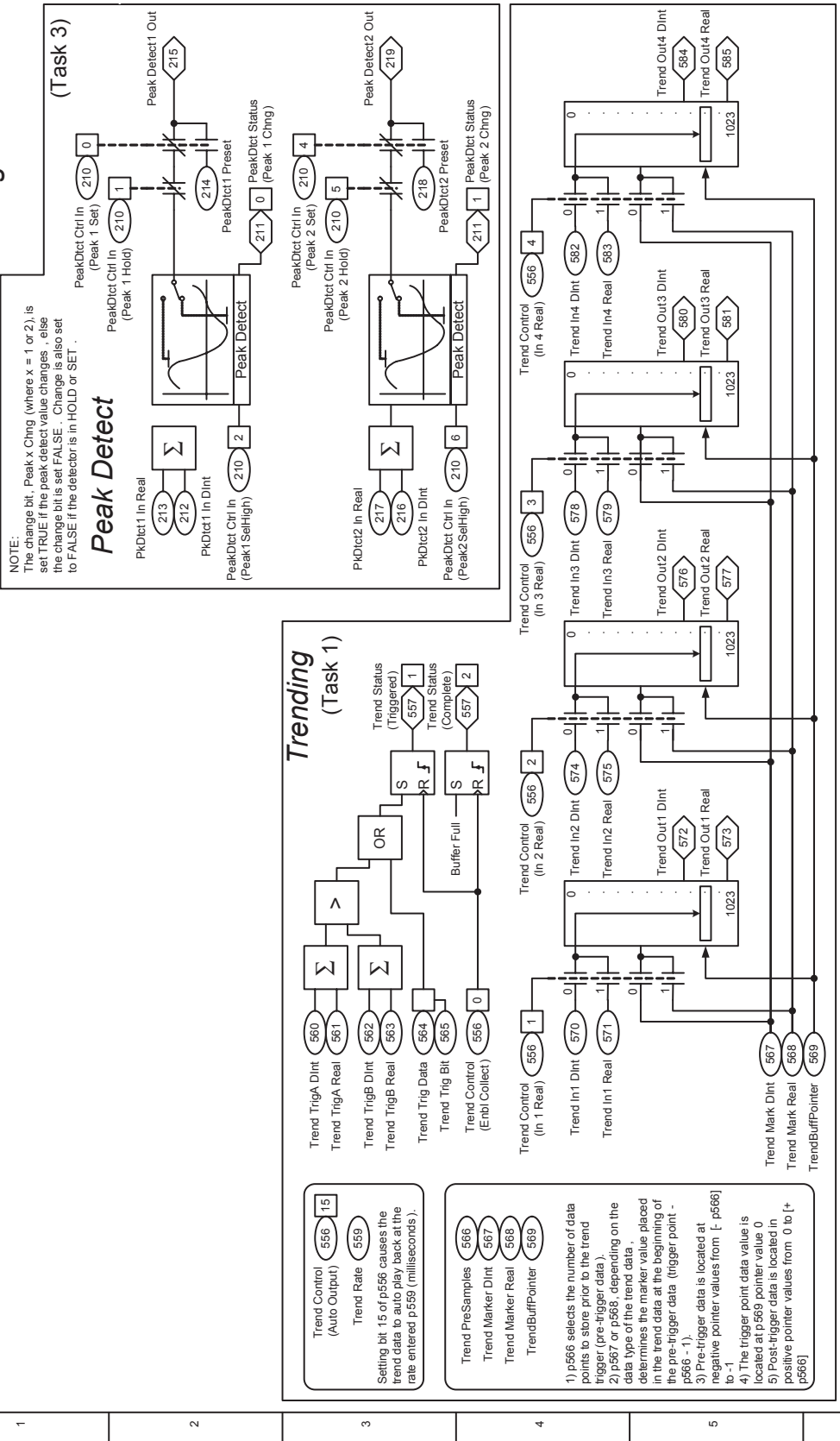


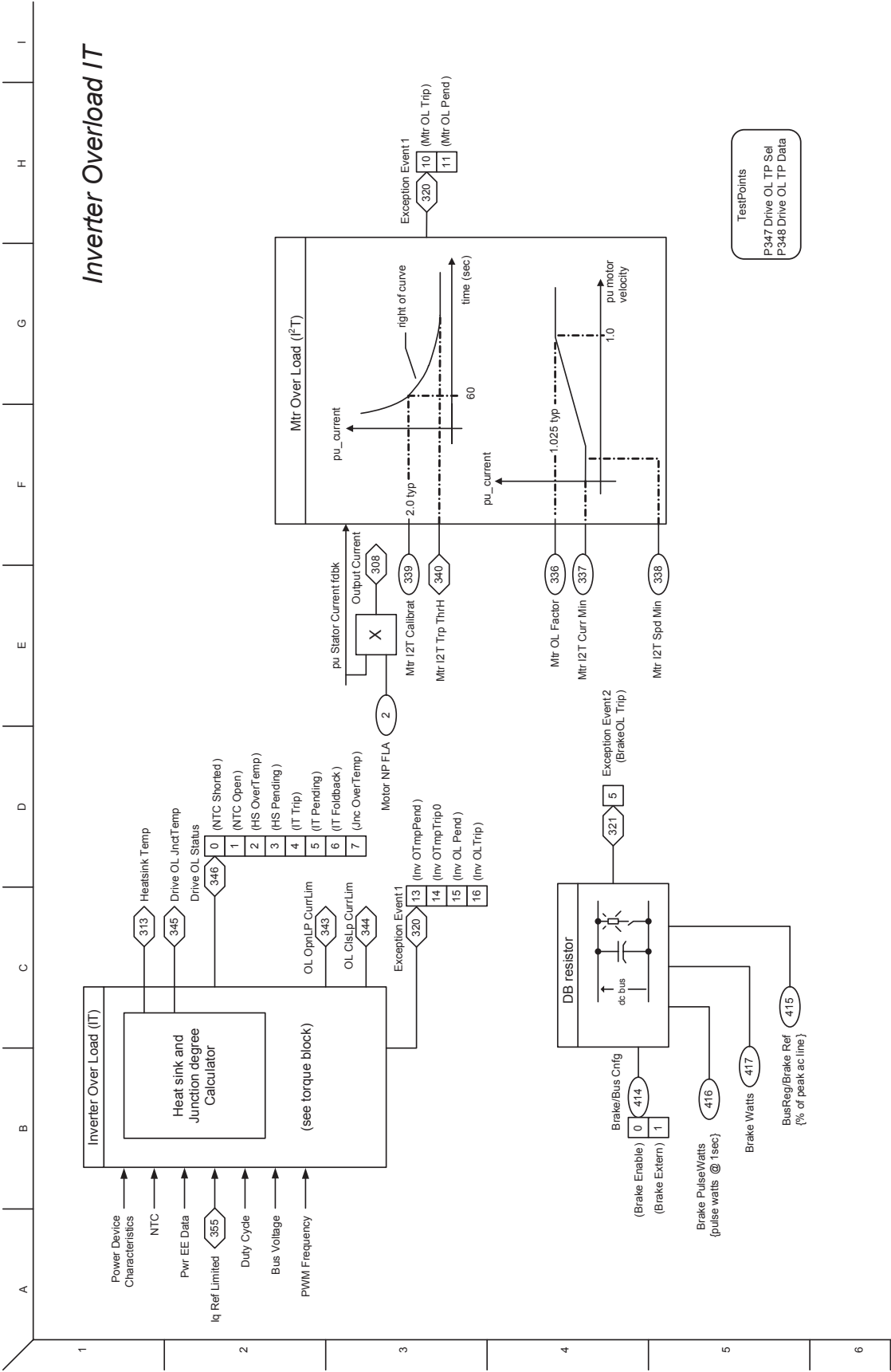
PowerFlex 700S Phase 2

Volts / Hz



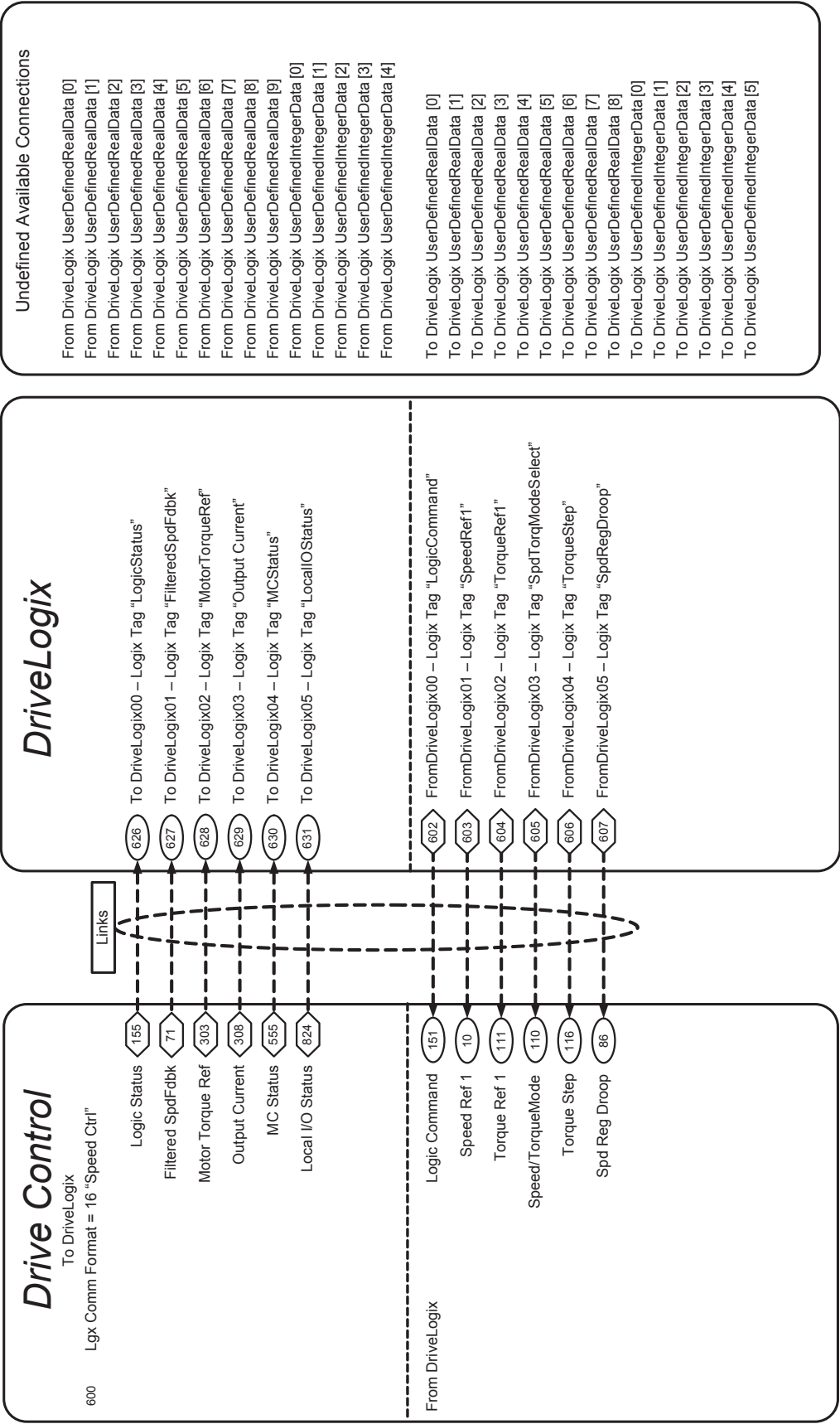
Diagnostic Tools





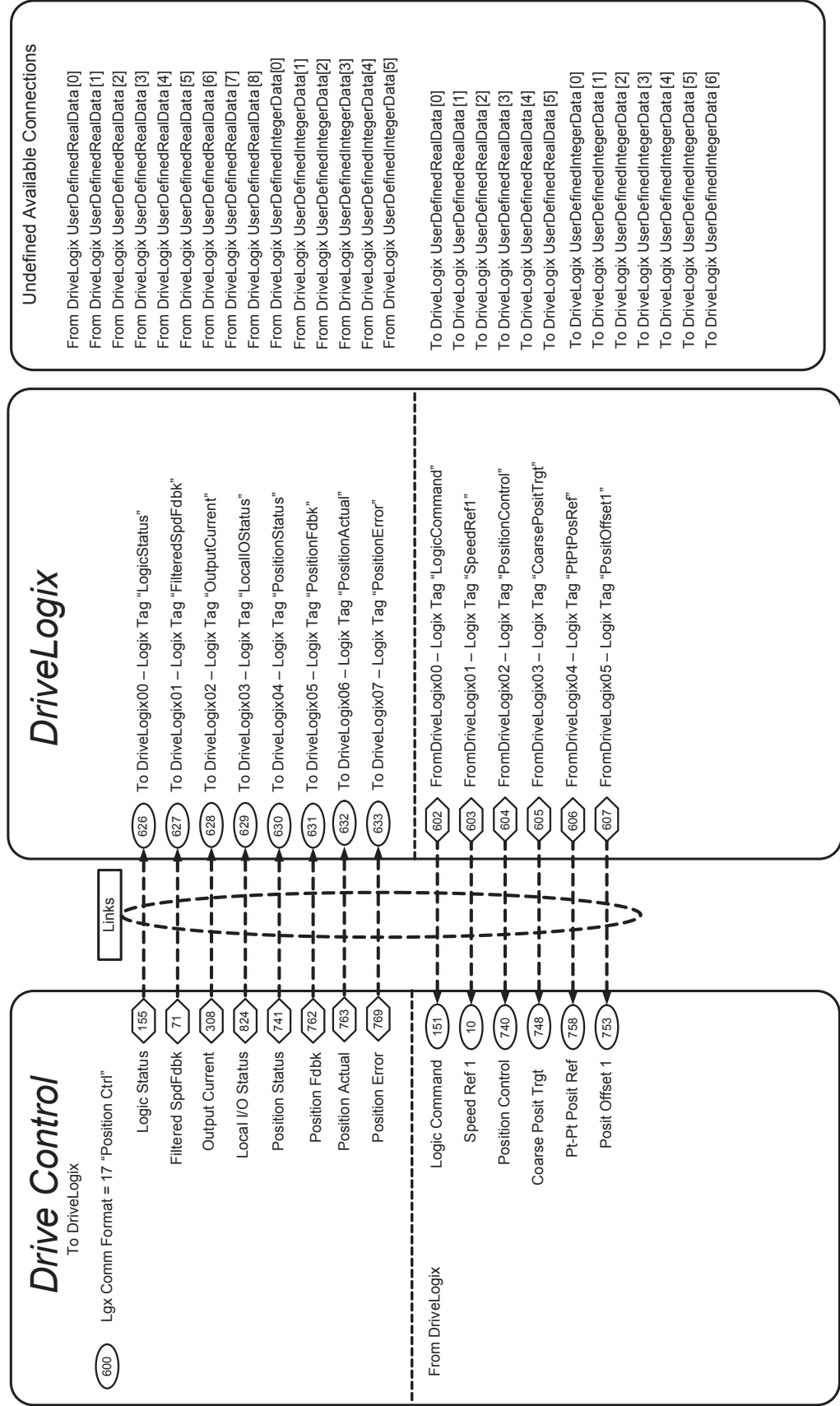
PowerFlex 700S Phase 2

DriveLogix-Speed Control



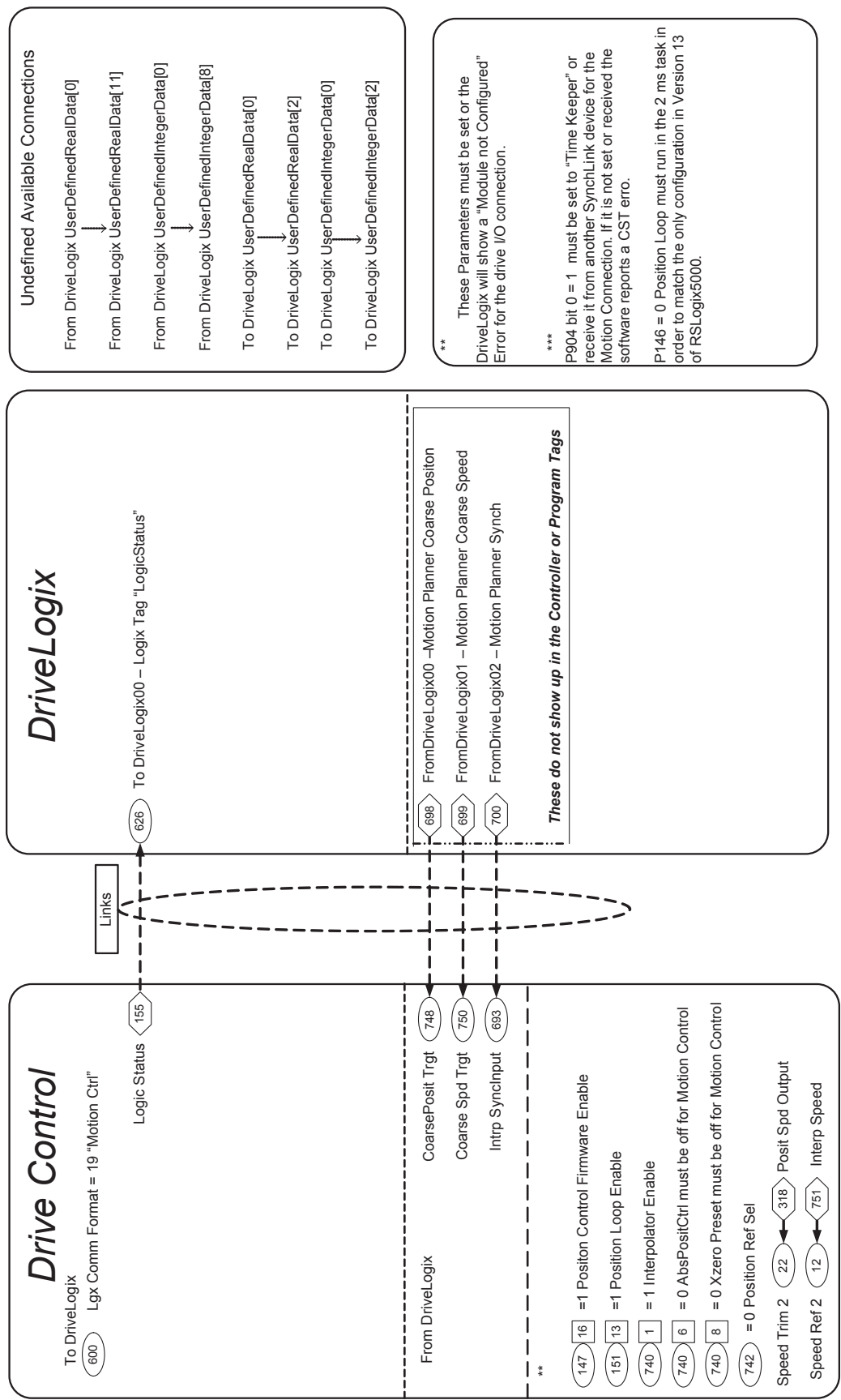
PowerFlex 700S Phase 2

DriveLogix-Position Control



PowerFlex 700S Phase 2

DriveLogix-Motion Control



Application Notes

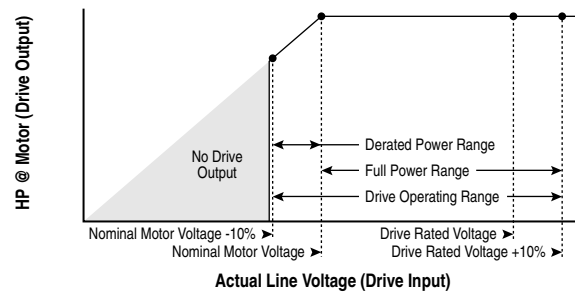
For additional application notes, refer to the *PowerFlex 700S Adjustable Frequency AC Drive with Phase II Control - Reference Manual*, publication PFLEX-RM003.

| For Information on ... | See Page... |
|-----------------------------------------------|---------------------|
| Input Voltage Range/Tolerance | C-1 |
| Motor Control Mode | C-2 |
| Motor Overload | C-5 |
| Stop Dwell Time | C-7 |
| Setpt 1 Data | C-8 |
| Setpt 2 Data | C-8 |

Input Voltage Range/ Tolerance

| Drive Rating | Nominal Line Voltage | Nominal Motor Voltage | Drive Full Power Range | Drive Operating Range |
|--------------------------------|----------------------|-----------------------|------------------------|-----------------------|
| 200-240 | 200 | 200† | 200-264 | 180-264 |
| | 208 | 208 | 208-264 | |
| | 240 | 230 | 230-264 | |
| 380-400 | 380 | 380† | 380-528 | 342-528 |
| | 400 | 400 | 400-528 | |
| | 480 | 460 | 460-528 | |
| 500-600 (Frames 1-4 Only) | 600 | 575† | 575-660 | 432-660 |
| 500-690 (Frames 5 & 6 Only) | 600 | 575† | 575-660 | 475-759 |
| | 690 | 690 | 690-759 | 475-759 |

| | |
|--------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Drive Full Power Range = | Nominal Motor Voltage to Drive Rated Voltage + 10%. Rated current is available across the entire Drive Full Power Range |
| Drive Operating Range = | Lowest† Nominal Motor Voltage - 10% to Drive Rated Voltage + 10%. Drive Output is linearly derated when Actual Line Voltage is less than the Nominal Motor Voltage |

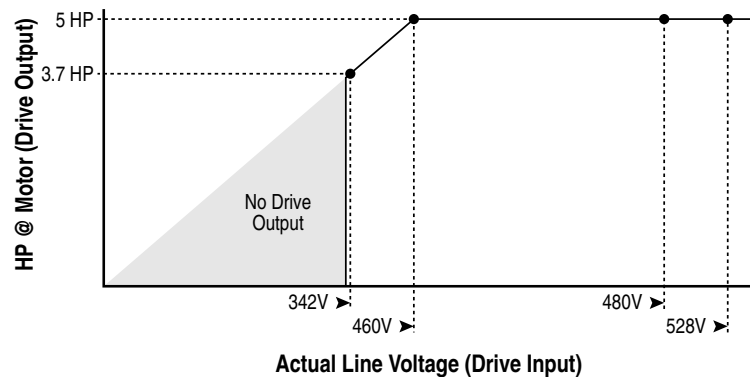


Example:

Calculate the maximum power of a 5 HP, 460V motor connected to a 480V rated drive supplied with 342V Actual Line Voltage input.

- Actual Line Voltage / Nominal Motor Voltage = 74.3%
- $74.3\% \times 5 \text{ HP} = 3.7 \text{ HP}$
- $74.3\% \times 60 \text{ Hz} = 44.6 \text{ Hz}$

At 342V Actual Line Voltage, the maximum power the 5 HP, 460V motor can produce is 3.7 HP at 44.6 Hz.



Motor Control Mode

Parameter 485 [Motor Ctrl Mode] selects the type of motor control to use. This parameter is set during the HIM assisted startup when asked to select the Motor Control. The settings for Parameter 485 [Motor Ctrl Mode] are

- 0 - "FOC" selects field oriented control. Field oriented control is used with AC squirrel cage induction motors for high performance.
- 1 - "FOC 2" selects field oriented control and is only used for a specific type of AC induction motor with motor thermal feedback. Note: "FOC 2" is used only for motors manufactured by Reliance Electric - Japan.
- 2 - "Pmag Motor" selects control for permanent magnet motors.
- 3 - "V/Hz" selects volts per hertz control. This selection is available in v2.003 and later.
- 4 - "Test" puts the drive in a test mode to perform the direction test. "Test" is automatically selected during the direction test portion of the Start-Up routine and does not need to be set manually by the user.

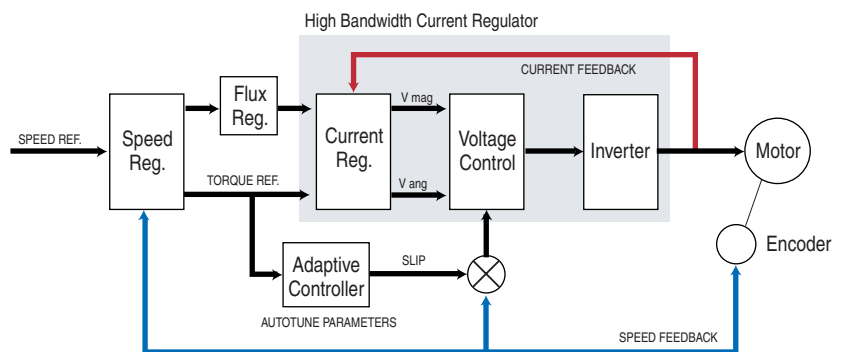
Field Oriented Control, Permanent Magnet Motor Control, and Volts/Hertz Control are described in further detail below.

Field Oriented Control

Field oriented control is used with AC squirrel cage induction motors for high performance. Motor data and an autotune is required for correct operation in this mode. Field oriented control is selected by setting parameter 485 [Motor Ctrl Mode] = 0 "FOC".

In field oriented control, the drive takes the speed reference that is specified by the Speed Reference Selection Block and compares it to the speed feedback. The speed regulator uses Proportional and Integral gains to adjust the torque reference for the motor. This torque reference attempts to operate the motor at the specified speed. The torque reference is then converted to the torque producing component of the motor current.

This type of speed regulator produces a high bandwidth response to speed command and load changes. In field oriented control the flux and torque producing currents are independently controlled. Therefore, you can send a torque reference directly instead of a speed reference. The independent flux control also allows you to reduce the flux in order to run above base motor speed.



Permanent Magnet Control

Permanent magnet control is used with permanent magnet motors. Permanent magnet motor control is selected by setting parameter 485 [Motor Ctrl Mode] = 2 "Pmag Motor".

- Permanent magnet motor control requires either a hi-resolution Stegmann encoder or compatible resolver feedback on the motor. Refer to [PowerFlex 700S Stegmann Hi-Resolution Encoder Feedback Option on page F-1](#) for a list of compatible hi-resolution Stegmann encoders and compatible resolvers.
- Motor data and an autotune is required for correct operation in this mode. Refer to [PowerFlex 700S Permanent Magnet Motor Specifications on page I-1](#) for a list of compatible Allen-Bradley permanent magnet motors and motor data to be used with the PowerFlex 700S.

Volts/Hertz Control - v2.003 and later

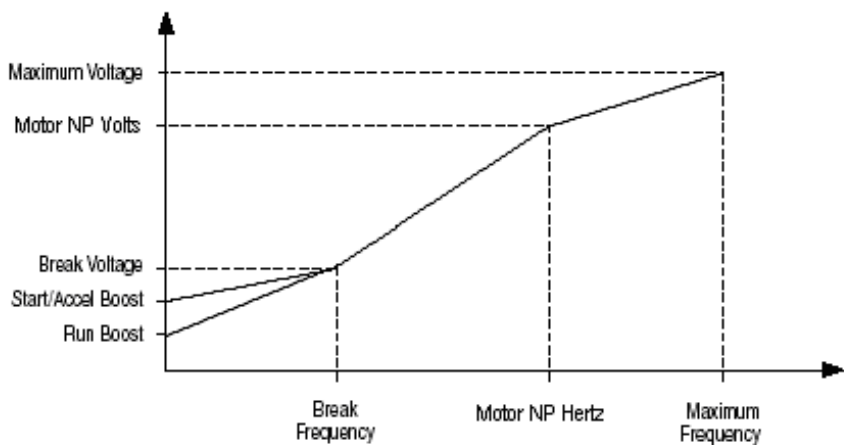
Volts/Hertz control is used in fan, pump, or multi-motor applications. Volts/Hertz operation creates a fixed relationship between output voltage and output frequency.

Configuration:

Volts/Hertz control is selected by setting parameter 485 [Motor Ctrl Mode] = 3 "V/Hz".

Volts/Hertz allows a wide variety of patterns using linear segments. The default configuration is a straight line from zero to rated voltage and frequency. This is the same volts/hertz ratio that the motor would see if it were started across the line. As seen in the diagram below, the volts/hertz ratio can be changed to provide increased torque performance when required. The shaping takes place by programming five distinct points on the curve:

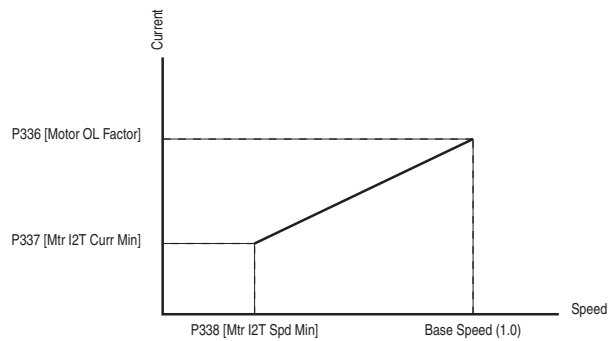
1. Parameter 527 [Start/Acc Boost] is used to create additional torque for breakaway from zero speed and acceleration of heavy loads at lower speeds.
2. Parameter 528 [Run Boost] is used to create additional running torque at low speeds. The value is typically less than the required acceleration torque. The drive will lower the boost voltage to this level when running at low speeds (not accelerating). This reduces excess motor heating that could be caused if the higher start/accel boost level were used.
3. Parameters 529 [Break Voltage] and 530 [Break Frequency] are used to increase the slope of the lower portion of the Volts/Hertz curve, providing additional torque.
4. Parameters 1 [Motor NP Volts] and 3 [Motor NP Hertz] set the upper portion of the curve to match the motor design and mark the beginning of the constant horsepower region.
5. Parameters 531 [Maximum Voltage] and 532 [Maximum Freq] slope that portion of the curve used above base speed.



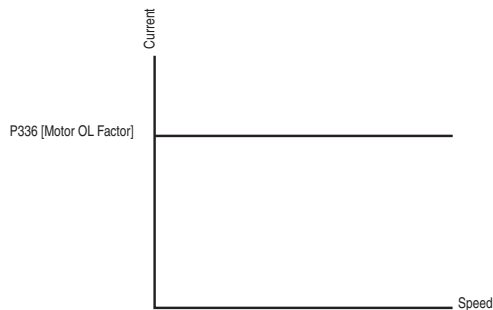
Motor Overload

Setting Parameter 338 [Mtr I2T Spd Min]

Parameter 338 [Mtr I2T Spd Min] sets the minimum speed for the motor overload (I^2T) function. This value determines the minimum speed the drive should run below the minimum current threshold set in parameter 337 [Mtr I2T Curr Min]. Parameters 338 [Mtr I2T Spd Min] and 337 [Mtr I2T Curr Min] set the first current/speed breakpoint. From this point the current threshold is linear to the value specified by the motor service factor set in parameter 336 [Motor OL Factor].

Figure C.1 Motor Overload Curve When Par 338 [Mtr I2T Spd Min] Is Less Than 1.0

When motor current exceeds the value of the curve, the motor overload output integrates. A motor overload exception event occurs when the value of the motor overload output reaches 1.0. The value of the motor overload output is visible in Par 330 [Fault TP Data] when the value of Par 329 [Fault TP Sel] equals 13.

Figure C.2 Motor Overload Curve When Par 338 [Mtr I2T Spd Min] Is Equal To 1.0

When the value of Par 338 [Mtr I2T Spd Min] equals 1.0, the curve is flat - at the value of rated motor current times the value of Par 336 [Motor OL Factor]. If the motor current exceeds the value of the curve, the value of the motor overload output integrates. The value of the motor overload output is visible in Par 330 [Fault TP Data] when the value of Par 329 [Fault TP Sel] equals 13.

Motor Overload Memory Retention Per 2005 NEC

The PowerFlex 700S drive with Phase II control (firmware 3.01 and higher) has the ability to retain the motor overload count at power down per the 2005 NEC motor overtemperature requirement.

- To enable motor overload memory retention, set bit 20 “Motor OL Ret” of parameter 153 [Control Options] to “1”.
- To disable motor overload memory retention, set bit 20 “Motor OL Ret” of parameter 153 [Control Options] to “0”.

The motor overload count value can be viewed in parameter 341 [Mtr I2T Count].

Stop Dwell Time

Sets an adjustable delay time between detecting zero speed and disabling the speed and torque regulators, when responding to a stop command.

Important: Consult industry and local codes when setting the value of this parameter.

Figure C.3 Drive Operation When Par 154 [Stop Dwell Time] Equals Zero

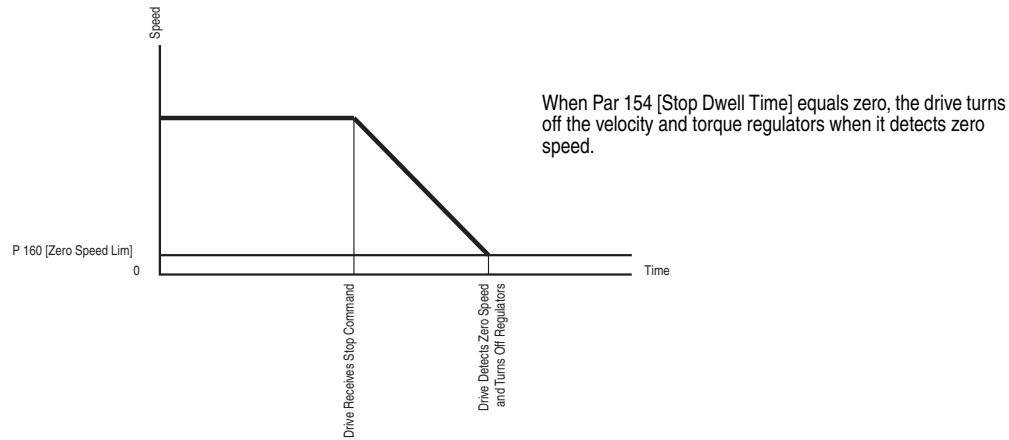
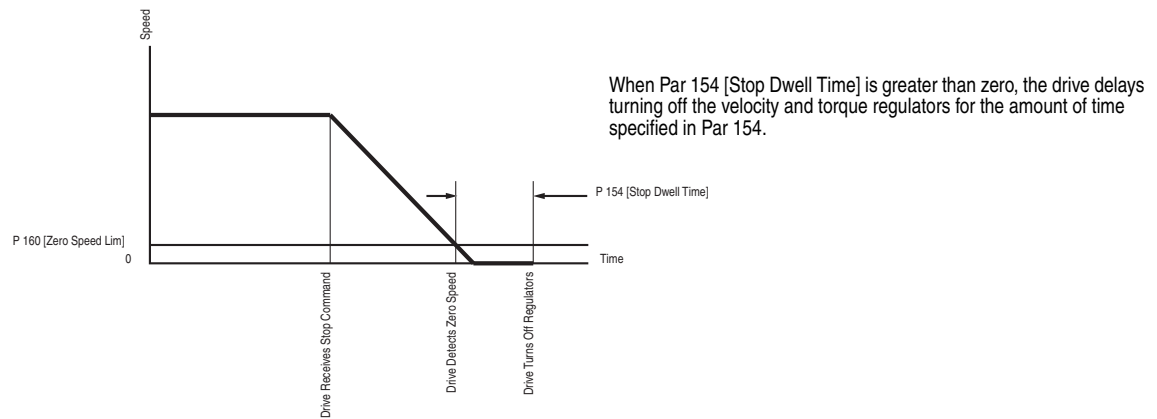


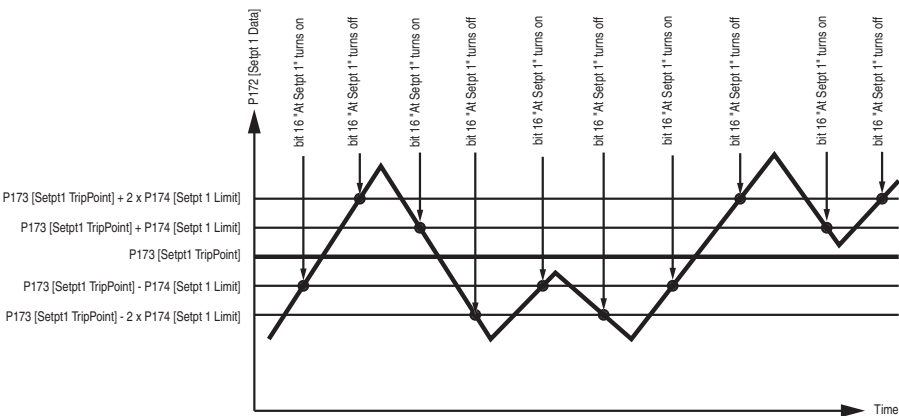
Figure C.4 Drive Operation When Par 154 [Stop Dwell Time] is Greater Than Zero



Setpt 1 Data

Provides data for comparison of Par 172 [Setpt 1 Data] to Par 173 [Setpt1 TripPoint], driving bit 16 “At Setpt 1” of Par 155 [Logic Status].

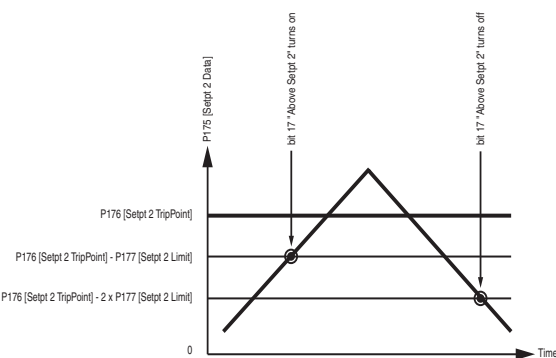
Figure C.5 At Setpoint 1 Status



Setpt 2 Data

Provides data for comparison of Par175 [Setpt 2 Data] to Par 176 [Setpt2 TripPoint], driving bit 17 “Above Setpt 2” of Par 155 [Logic Status].

Figure C.6 Above Setpoint 2 Status

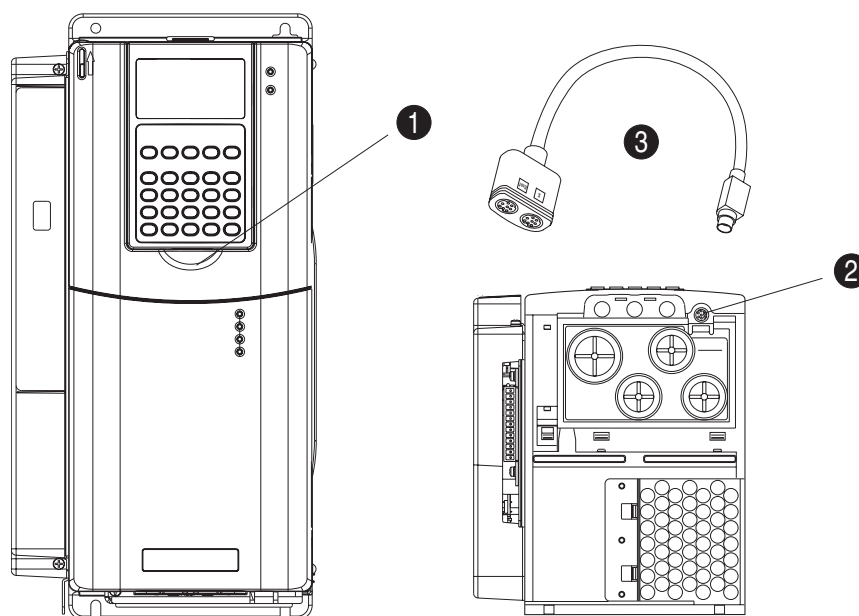


HIM Overview

| For Information on ... | See Page... |
|---------------------------------------------------|---------------------|
| External and Internal Connections | D-1 |
| LCD Display Elements | D-2 |
| ALT Functions | D-2 |
| Menu Structure | D-3 |
| Viewing and Editing Parameters | D-5 |
| Linking Parameters | D-5 |
| Removing/Installing the HIM | D-6 |

External and Internal Connections

The PowerFlex 700S provides cable connection for a hand-held HIM or Port Expander/Splitter (Frame 1 shown).



| No. | Connector | Description |
|-----|-----------------|------------------------------------------------------------------|
| ❶ | DPI Port 1 | HIM connection when installed in cover. |
| ❷ | DPI Port 2 | Cable connection for handheld and remote options. |
| ❸ | DPI Port 3 or 2 | Splitter cable connected to DPI Port 2 provides additional port. |

LCD Display Elements

| Display | Description | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------|---------|-------------|-------------|--|-----|------------|--|--|-------------|--|--|-----------|--|--|---------------|--|--|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------|--------------|-------|-------------|-------------|---------------------------|--|--|--|--|--------------------------------------------|--|--|--|--|
| <table><tr><td>F</td><td>Stopped</td><td>Auto</td></tr><tr><td colspan="2">0.0</td><td>RPM</td></tr><tr><td colspan="3">Main Menu:</td></tr><tr><td colspan="3">Diagnostics</td></tr><tr><td colspan="3">Parameter</td></tr><tr><td colspan="3">Device Select</td></tr></table> | F | Stopped | Auto | 0.0 | | RPM | Main Menu: | | | Diagnostics | | | Parameter | | | Device Select | | | <table><tr><td>Direction</td><td>Drive Status</td><td>Alarm</td><td>Auto/Manual</td><td>Information</td></tr><tr><td colspan="5">Commanded or Output Speed</td></tr><tr><td colspan="5">Programming / Monitoring / Troubleshooting</td></tr></table> | Direction | Drive Status | Alarm | Auto/Manual | Information | Commanded or Output Speed | | | | | Programming / Monitoring / Troubleshooting | | | | |
| F | Stopped | Auto | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 0.0 | | RPM | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Main Menu: | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Diagnostics | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Parameter | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Device Select | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Direction | Drive Status | Alarm | Auto/Manual | Information | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Commanded or Output Speed | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Programming / Monitoring / Troubleshooting | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

ALT Functions

To use an ALT function, press the ALT key release it, then press the programming key associated with one of the following functions:

Table D.A ALT Key Functions









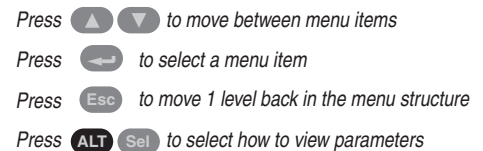
| ALT Key and then... | | |
|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------|
|  |  | S.M.A.R.T. Function not available. |
| |  | View Allows the selection of how parameters will be viewed or detailed information about a parameter or component. |
| |  | Lang Function not available. |
| |  | Auto/Man Function not available. |
| |  | Remove Allows HIM removal without causing a fault if the HIM is not the last controlling device and does not have manual control of the drive. |
| |  | Exp Allows the value to be entered as an exponent. |
| |  | Param # Allows entry of a parameter number for viewing/editing. |

Figure D.1 HIM Menu Structure



Diagnostics Menu

When a fault trips the drive, use this menu to access detailed data about the drive.

| Option | Description |
|----------------|---------------------------------------------------------------------|
| Faults | View fault queue or fault information, clear faults or reset drive. |
| Status Info | View parameters that display status information about the drive. |
| Device Version | View the firmware version and hardware series of components. |
| HIM Version | View the firmware version and hardware series of the HIM. |

Parameter Menu

Refer to [Viewing and Editing Parameters on page D-5](#).

Device Select Menu

Use this menu to access parameters in connected peripheral devices.

Memory Storage Menu

Drive data can be saved to, or recalled from, the HIM or EEPROM. EEPROM is permanent non-volatile drive memory. HIM sets are files stored in permanent non-volatile HIM memory.

| Option | Description |
|-----------------------------------------------|----------------------------------------------------------------------------------------------|
| HIM Copycat Device -> HIM Device <- HIM | Save data to a HIM set, load data from a HIM set to active drive memory or delete a HIM set. |
| EEPROM | Save data to EEPROM, load data from EEPROM to active drive memory or name a User set. |
| Reset To Defaults | Restore the drive to its factory-default settings. |

Start Up Menu

See [Chapter 2](#).

Preferences Menu

The HIM and drive have features that you can customize.

| Option | Description |
|-----------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Drive Identity | Add text to identify the drive. |
| Change Password | Enable/disable or modify the password. |
| User Dspy Lines | Select the display, parameter, scale and text for the User Display. The User Display is two lines of user-defined data that appears when the HIM is not being used for programming. |
| User Dspy Time | Set the wait time for the User Display or enable/disable it. |
| User Dspy Video | Select Reverse or Normal video for the Frequency and User Display lines. |
| Reset User Dspy | Return all the options for the User Display to factory default values. |

The PowerFlex 700S drive is initially set to Basic Parameter View. To view all parameters, set parameter 196 [ParamAccessLvl] to option 1 “Advanced”. Parameter 196 is not affected by the Reset to Defaults function.

Viewing and Editing Parameters

LCD HIM

| Step | Key(s) | Example Displays |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|-----------------------------------------------------------------------------------------------------------------------------------|
| 1. In the Main Menu, press the Up Arrow or Down Arrow to scroll to "Parameter." | ▲ or ▼ | |
| 2. Press Enter. "FGP File" appears on the top line and the first three files appear below it. | ↵ | <div> FGP: File Monitor Motor Control Dynamic Control </div> |
| 3. Press the Up Arrow or Down Arrow to scroll through the files. | ▲ or ▼ | |
| 4. Press Enter to select a file. The groups in the file are displayed under it. | ↵ | <div> FGP: Group Motor Data Monitoring Drive Config </div> |
| 5. Repeat steps 3 and 4 to select a group and then a parameter. The parameter value screen will appear. | | <div> FGP: Parameter Motor NP Volts Motor NP FLA Motor NP Hertz </div> |
| 6. Press Enter to edit the parameter. | ↵ | |
| 7. Press the Up Arrow or Down Arrow to change the value. If desired, press Sel to move from digit to digit, letter to letter, or bit to bit. The digit or bit that you can change will be highlighted. | ▲ or ▼ Sel | <div> FGP: Par 2 Motor NP FLA 1.000 Amps [ALT][VIEW] -> Limits </div> |
| 8. Press Enter to save the value. If you want to cancel a change, press Esc. | ↵ | |
| 9. Press the Up Arrow or Down Arrow to scroll through the parameters in the group, or press Esc to return to the group list. | ▲ or ▼ Esc | <div> FGP: Par 2 Motor NP FLA 1.500 Amps [ALT][VIEW] -> Limits </div> |

Numeric Keypad Shortcut

If using a HIM with a numeric keypad, press the ALT key and the +/- key to access the parameter by typing its number.

Linking Parameters

Most parameter values are entered directly by the user. However, certain parameters can be "linked," so the value of one parameter becomes the value of another. For Example: the value of an analog input can be linked to [Accel Time 1]. Rather than entering an acceleration time directly (via HIM), the link allows the value to change by varying the analog signal. This can provide additional flexibility for advanced applications.

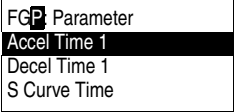






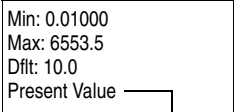


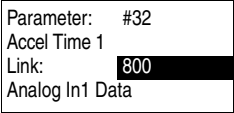

Each link has 2 components:

- Source parameter – sender of information.
- Destination parameter – receiver of information.




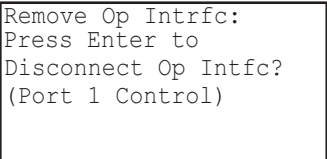
Most parameters can be a source of data for a link, except parameter values that contain an integer representing an ENUM (text choice). These are not allowed, since the integer is not actual data (it represents a value). Refer to the list of parameters in [Chapter 3](#) for information on which parameters can

be destinations. All links must be established between equal data types (parameter value formatted in floating point can only source data to a destination parameter value that is also floating point).

Establishing A Link

| Step | Key(s) | Example Displays |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| 1. Select a valid destination parameter to be linked. The parameter value screen displays. | |  |
| 2. Press Enter to edit the parameter. The cursor will move to the value line. |  | |
| 3. Press ALT and then View (Sel). Next, press the Up or Down Arrow to change "Present Value" to "Define Link." Press Enter. |  +   or   |  |
| 4. Enter the Source Parameter Number and press Enter. |  |  |
| <p>The linked parameter can now be viewed two different ways by repeating steps 1-4 and selecting "Present Value" or "Define Link." If an attempt is made to edit the value of a linked parameter, "Parameter is Linked!" will be displayed, indicating that the value is coming from a source parameter and can not be edited.</p> | |  |
| 5. To remove a link, repeat steps 1-5 and change the source parameter number to zero (0). | | |
| 6. Press Esc to return to the group list. |  | |

Removing/Installing the HIM The HIM can be removed or installed while the drive is powered.

| Step | Key(s) | Example Displays |
|------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|
| To remove the HIM... | | |
| 1. Press ALT and then Enter (Remove). The Remove HIM configuration screen appears. |  +  | |
| 2. Press Enter to confirm that you want to remove the HIM. |  | |
| 3. Remove the HIM from the drive. | | |
| To install HIM... | | |
| 1. Insert into drive or connect cable. | |  |

PowerFlex 700S 2nd Encoder Feedback Option Card

Chapter Objectives

| For Information on ... | See Page... |
|-----------------------------------------------------------------------|---------------------|
| Specifications | E-1 |
| Wiring and Configuring the Second Encoder Option Card | E-2 |

Specifications

2nd Encoder Feedback Option Card Specifications

| Consideration | Description |
|-------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Input | Dual Channel Plus Marker, Isolated with differential transmitter Output (Line Drive) Incremental, Dual Channel Quadrature type |
| Encoder Voltage Supply | 5V DC or 12V DC 320 mA per channel 5V DC requires an external power supply. 12 V DC minimum high state voltage of 7V DC, maximum low state voltage of 0.4V DC |
| Maximum Input Frequency | 400 kHz |

Table E.A Recommended Cable

| Cable Type and Length | | Wire Type(s) | Description |
|-------------------------------------------------------------|-----------|-------------------------------------------------|---------------------------------------------------------------|
| Encoder/Pulse I/O Less 30.5 m (100 ft.) | Combined: | Belden 9730 (or equivalent) ⁽¹⁾ | 0.196 mm ² (24 AWG), individually shielded. |
| Encoder/Pulse I/O 30.5 m (100 ft.) to 152.4 m (500 ft.) | Signal: | Belden 9730/9728 (or equivalent) ⁽¹⁾ | 0.196 mm ² (24 AWG), individually shielded. |
| | Power: | Belden 8790 ⁽²⁾ | 0.750 mm ² (18 AWG) |
| | Combined: | Belden 9892 ⁽³⁾ | 0.330 mm ² or 0.500 mm ² ⁽³⁾ |
| Encoder/Pulse I/O 152.4 m (500 ft.) to 259.1 m (850 ft.) | Signal: | Belden 9730/9728 (or equivalent) ⁽¹⁾ | 0.196 mm ² (24 AWG), individually shielded. |
| | Power: | Belden 8790 ⁽²⁾ | 0.750 mm ² (18 AWG) |
| | Combined: | Belden 9773/9774 (or equivalent) ⁽⁴⁾ | 0.750 mm ² (18 AWG), individually shielded pair. |

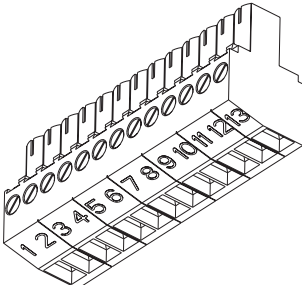
⁽¹⁾ Belden 9730 is 3 individually shielded pairs (2 channel plus power). If 3 channel is required, use Belden 9728 (or equivalent).

⁽²⁾ Belden 8790 is 1 shielded pair.

⁽³⁾ Belden 9892 is 3 individually shielded pairs (3 channel), 0.33 mm² (22 AWG) plus 1 shielded pair 0.5 mm² (20 AWG) for power.

⁽⁴⁾ Belden 9773 is 3 individually shielded pairs (2 channel plus power). If 3 channel is required, use Belden 9774 (or equivalent).

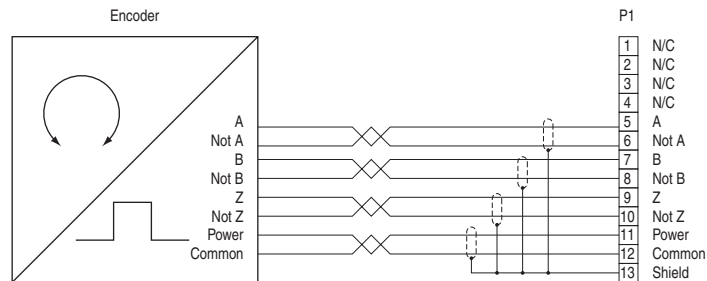
Terminal block P1 contains connection points for a differential encoder. This terminal block resides on the Second Encoder Option Card.

| | Terminal | Signal | Description |
|-----------------------------------------------------------------------------------|----------|--------|-------------------------------------------|
|  | 1 | N/C | Not connected |
| | 2 | N/C | |
| | 3 | N/C | |
| | 4 | N/C | |
| | 5 | A | Quadrature A input |
| | 6 | Not A | Quadrature B input |
| | 7 | B | |
| | 8 | Not B | Marker Pulse |
| | 9 | Z | |
| | 10 | Not Z | DC Power for encoder interface |
| | 11 | Power | |
| | 12 | Common | |
| | 13 | Shield | Connection point for encoder cable shield |

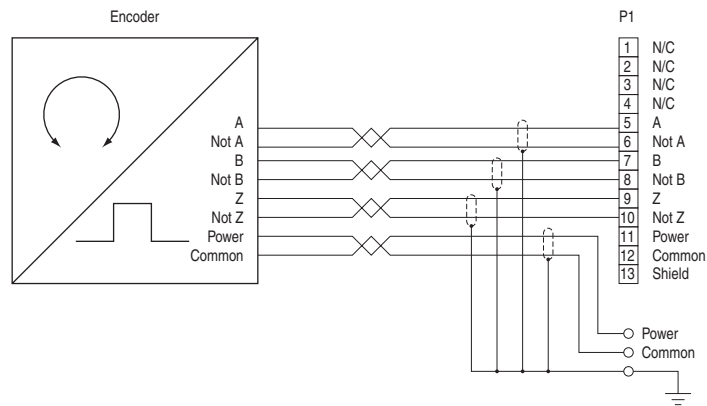
Wiring and Configuring the Second Encoder Option Card

Connection Examples

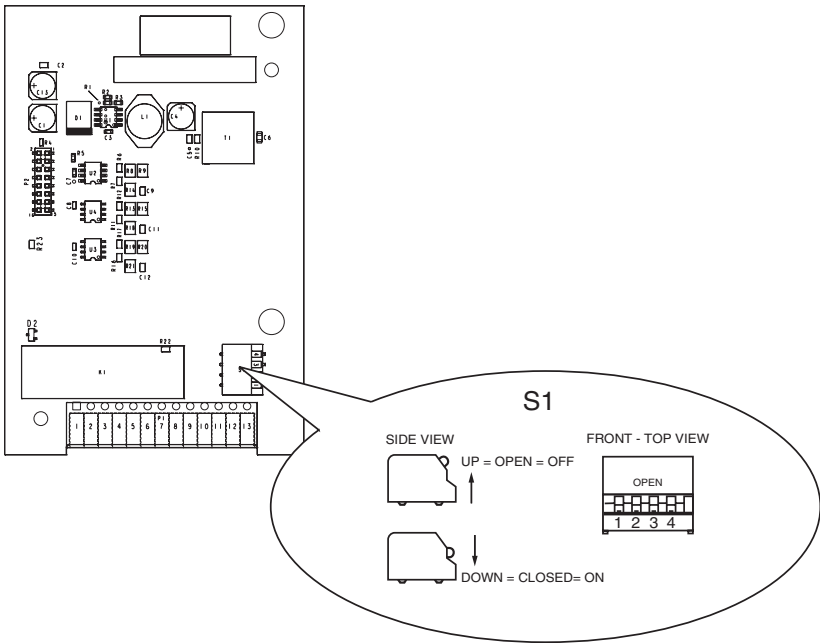
Differential Encoder with Internal Supply



Differential Encoder with External Supply



Dip Switch Settings



| Voltage Selection | S1-1 (Supply) | S1-2 (A Channel) | S1-3 (B Channel) | S1-4 (Z Channel) |
|-------------------|---------------|------------------|------------------|------------------|
| 5V DC | Closed | Closed | Closed | Closed |
| 12V DC | Open | Open | Open | Open |

Notes:

PowerFlex 700S Stegmann Hi-Resolution Encoder Feedback Option

Chapter Objectives

| For Information on ... | See Page... |
|--------------------------------------------------------------------------------------|---------------------|
| Specifications | E-1 |
| Wiring the Stegmann Hi-Resolution Feedback Option Card to an Encoder | E-2 |

Specifications

Stegmann Hi-Resolution Feedback Option Card Specifications

| Consideration | Description |
|-----------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Encoder Voltage Supply | 11.5V dc @ 130 mA |
| Hi-Resolution Feedback | Sine/Cosine 1V P-P Offset 2.5 |
| Maximum Cable Length | 90m (295 ft.) |
| Maximum Frequency (Encoder Speed) | 12.5 μ s/cycle (4687.5 RPM for encoders with 1024 sine cycles per revolution) (9375 RPM for encoders with 512 sine cycles per revolution) |
| RS-485 Interface | The Hi-Resolution Feedback Option card obtains the following information via the Hiperface RS-485 interface shortly after power-up: <ul style="list-style-type: none">• Address• Command Number• Mode• Number of turns• Number of Sine/Cos cycles• Checksum |
| Customer-I/O plug (P1) | Allen-Bradley PN: S94262912 Weidmuller PN: BL3.50/90/12BK |

Supported Encoders

[Table E.A](#) specifies which encoders are supported by the 700S Hi-Resolution Stegmann Encoder Feedback Option module.

Important: Please note that encoders must be ordered as "Single Ended". This will ensure that the RS-485 channel has the proper termination network installed at the factory.

Table F.A Supported Stegmann Encoders

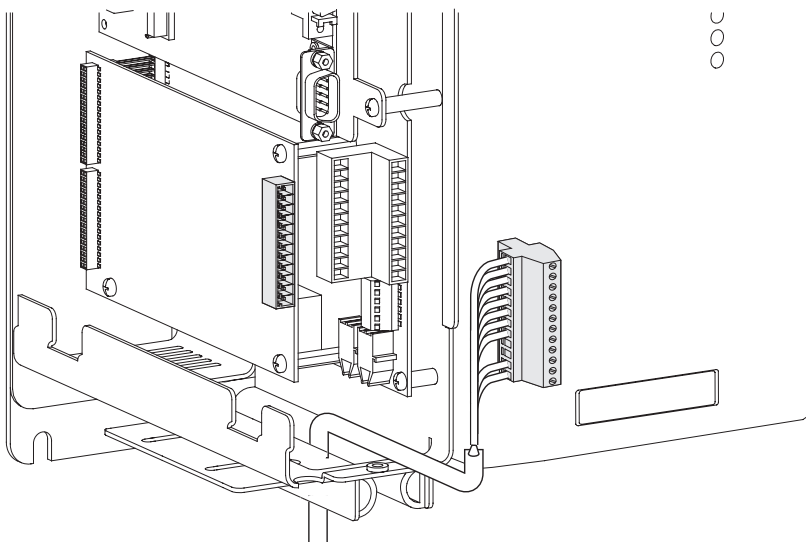
| Model | Resolution | Comment |
|--------------------------------------------|----------------------------------|--------------------------------------------------------------------------------------------------------------------------------------|
| SINCOS® SCS-60, SCS-70, SCM-60, and SCM-70 | 512 sine cycles per revolution. | SCM-60 and SCM-70 have built-in mechanical turns counter. |
| SINCOS® SCS-KIT-101 and SCM-KIT-101 | 1024 sine cycles per revolution. | SCM-60 and SCM-70 have built-in mechanical turns counter. |
| SINCOS® SRS-50, SRS-60, SRM-50, and SRM-60 | 1024 sine cycles per revolution. | SRM-50 and SRM-60 have built-in mechanical turns counter. |
| SINCOS® SRS/M 25 | 1024 sine cycles per revolution | SRS25 and SRM25 have built-in mechanical turns counter. IP65 Protection Class. Size 25 square flange mounting. |
| SINCOS® SRS660 | 1024 sine cycles per revolution | Hollow-shaft up to 14 mm diameter |
| SINCOS® SHS-170 | 512 sine cycles per revolution. | While the software supports this encoder, the SHS-170 draws excessive current and should only be used with an external power supply. |

SINCOS®, SINCODER® and LINCODER® are registered trademarks of Stegmann Inc.

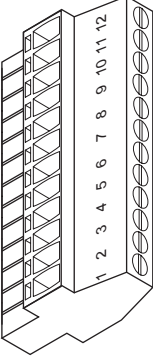
Wiring the Stegmann Hi-Resolution Feedback Option Card to an Encoder

Terminal block P1 contains connection points for a Stegmann Hiperface® encoder. This terminal block resides on the Hi-Resolution Encoder Feedback Option card.

Hiperface® is a registered trademark of Stegmann Inc.



TIP: Remember to route wires through the sliding access panel at the bottom of the Control Assembly.

| | Terminal | Signal | Description |
|-----------------------------------------------------------------------------------|----------|----------------|--------------------------------------------|
|  | 12 | POWER COMMON | Power supply for encoder interface. |
| | 11 | POWER | |
| | 10 | REFSIN | Negative Sine signal. |
| | 9 | +SIN | Positive Sine signal. |
| | 8 | REFCOS | Negative Cosine signal. |
| | 7 | +COS | Positive Cosine signal. |
| | 6 | SHIELD | Connection point for encoder cable shield. |
| | 5 | SHIELD | |
| | 4 | N/C | Not connected. |
| | 3 | N/C | |
| | 2 | DATA+ (RS 485) | Positive DH485 terminal. |
| | 1 | DATA- (RS 485) | Negative DH485 terminal. |

Recommended Cables

| If you are using this motor and feedback device: | Use this cable: | See this wiring diagram: |
|------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------|----------------------------------------|
| Allen-Bradley 1326AB-BXXXX-21ML, and -21MKXL motors with embedded Stegmann rotary encoder | Allen-Bradley 1326-CECU-XXL-XXX | Figure F.1 on page F-4 |
| Allen-Bradley 1326AB-BXXXX-M2L, -M2KXL, -S2L, and -S2KXL motors with embedded Stegmann rotary encoder | Allen-Bradley 2090-CDNFDMP-SXX | Figure F.2 on page F-4 |
| Allen-Bradley MPL-A5xx and all MPL-Bxxx motors with embedded Stegmann rotary encoder | Allen-Bradley 2090-CDNFDMP-SXX | Figure F.2 on page F-4 |
| Allen-Bradley 1326AB-BXXXX-M2L, -M2KXL, -S2L, and -S2KXL motors with embedded Stegmann rotary encoder | Allen-Bradley 2090-XXNFMF-SXX | Figure F.3 on page F-4 |
| Allen-Bradley MPL-A5xx and all MPL-Bxxx motors with embedded Stegmann rotary encoder | Allen-Bradley 2090-XXNFMF-SXX | Figure F.3 on page F-4 |
| Allen-Bradley MPL-A3xx - MPL-A45xx and all MPG series motors with embedded Stegmann rotary encoder | Allen-Bradley 2090-XXNFMF-SXX | Figure F.4 on page F-5 |
| Allen-Bradley MPL-A3xx - MPL-A45xx and all MPG series motors with embedded Stegmann rotary encoder | Allen-Bradley 2090-UXNFDMP-SXX | Figure F.5 on page F-5 |
| Any other motor with external Stegmann SHS-170 rotary encoder | Stegmann shielded twisted-pair cable with 12-pin DIN style connector | Figure F.6 on page F-5 |
| Any other motor with external Stegmann SCS-60, SCS-70, SCM-60 or SCM-70, SRS-50, SRS-60, SRM-60, SRM-60, SRS-25 or SRM-25 rotary encoder | Stegmann shielded twisted-pair cable with 10-pin MS style connector | Figure F.7 on page F-6 |
| Any other motor with external Stegmann SCS-Kit 101 or SCK-Kit 101 rotary encoder | Stegmann shielded twisted-pair cable with 8-pin Berg style connector | Figure F.8 on page F-6 |
| Any other motor with external Stegmann SRS660 rotary encoder | Is available only with pre-attached Stegmann shielded twisted-pair cable of various lengths | Figure F.9 on page F-6 |

Connection Examples

Figure F.1 1326AB-BXXXX-21ML, and -21MKXL motors with a 1326-CECU-XXL-XXX cable

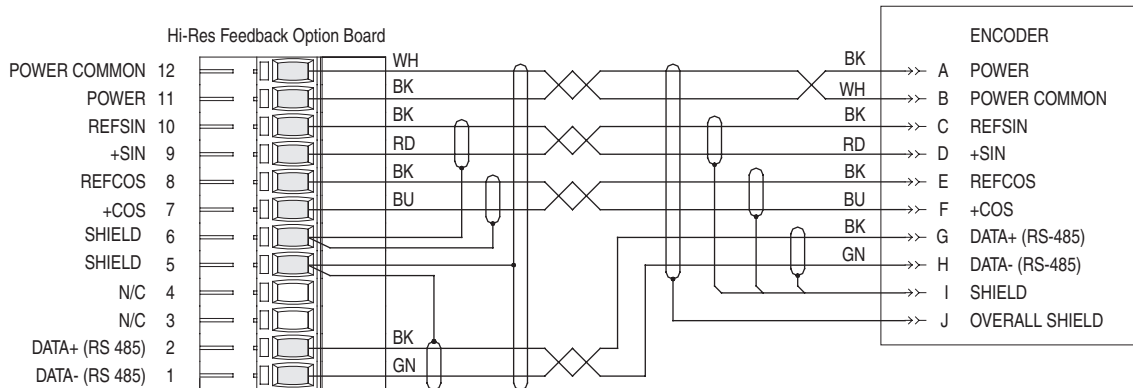


Figure F.2 MPL-A5xx and all MPL-Bxxx motors or 1326AB-BXXXX-M2L, -M2KXL, -S2L, and -S2KXL motors with 2090-CDNFDMP-SXX cable

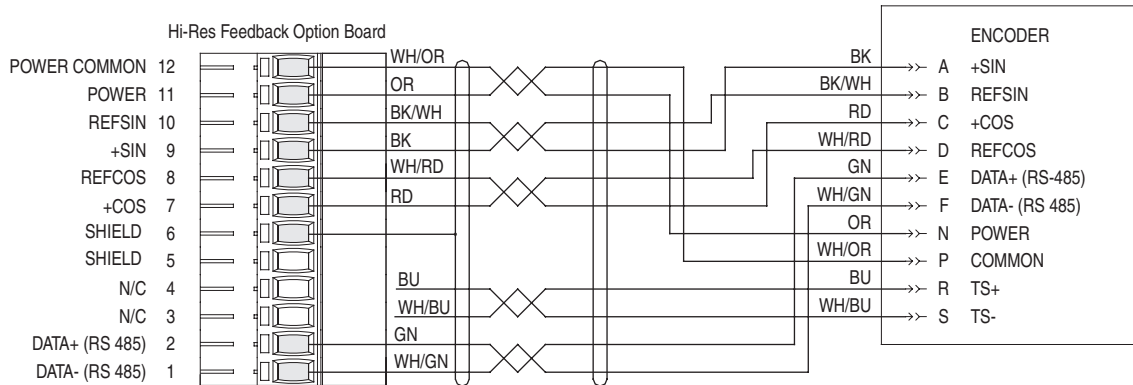
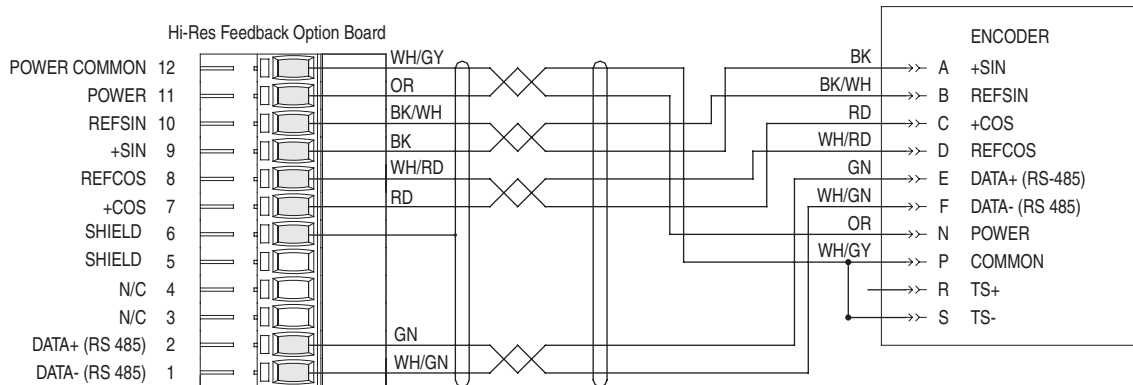


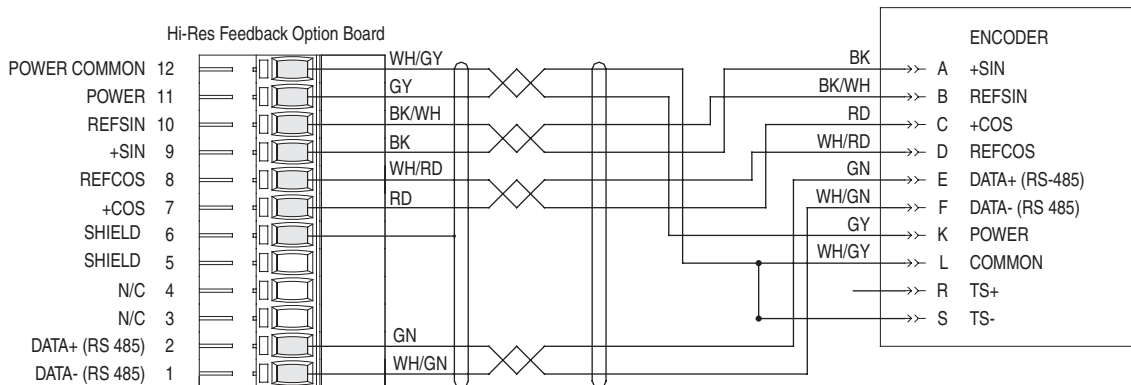
Figure F.3 MPL-A5xx and all MPL-Bxxx Motor or 1326AB-BXXXX-M2L, -M2KXL, -S2L, and -S2KXL motor with 2090-XXNFMP-SXX cable



Note: Thermal Switch cannot be accessed using 2090-XXNFMP-SXX cable.

Connection Examples

Figure F.4 MPL-A3xx - MPL-A45xx and all MPG series motors with 2090-XXNFMP-SXX cable



Note: Thermal Switch cannot be accessed using 2090-XXNFMP-SXX cable.

Figure F.5 MPL-A3xx - MPL-A45xx and all MPG series motors with 2090-UXNFDMP-SXX cable

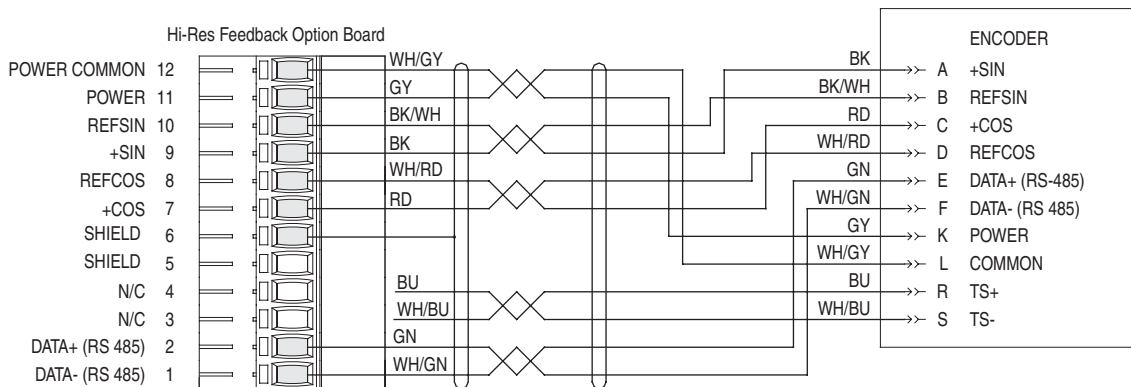
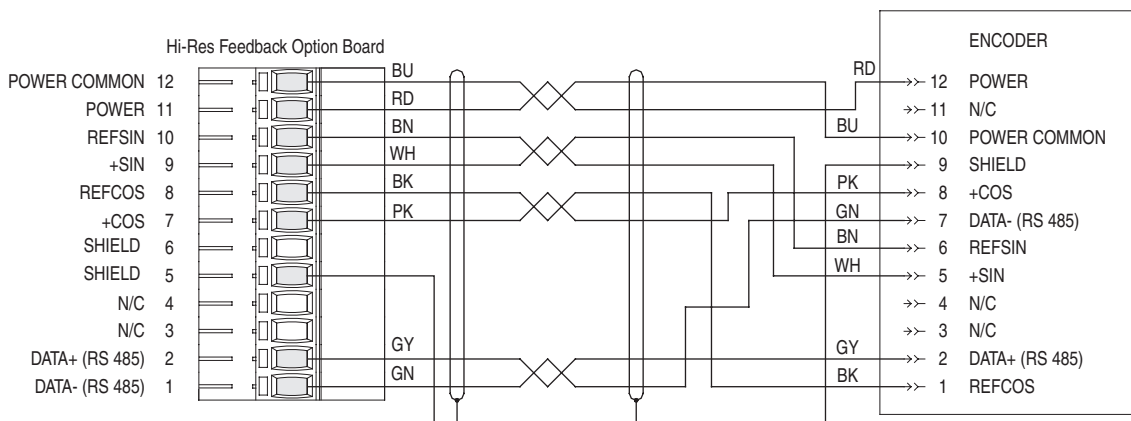


Figure F.6 Stegmann shielded twisted-pair cable with 12-pin DIN style connector



Connection Examples

Figure F.7 Stegmann shielded twisted-pair cable with 10-pin MS style connector

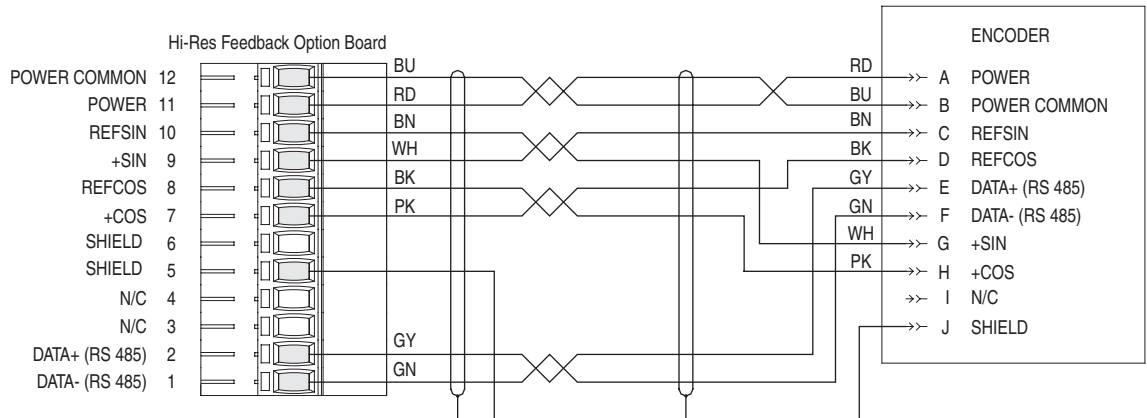


Figure F.8 Stegmann shielded twisted-pair cable with 8-pin Berg style connector

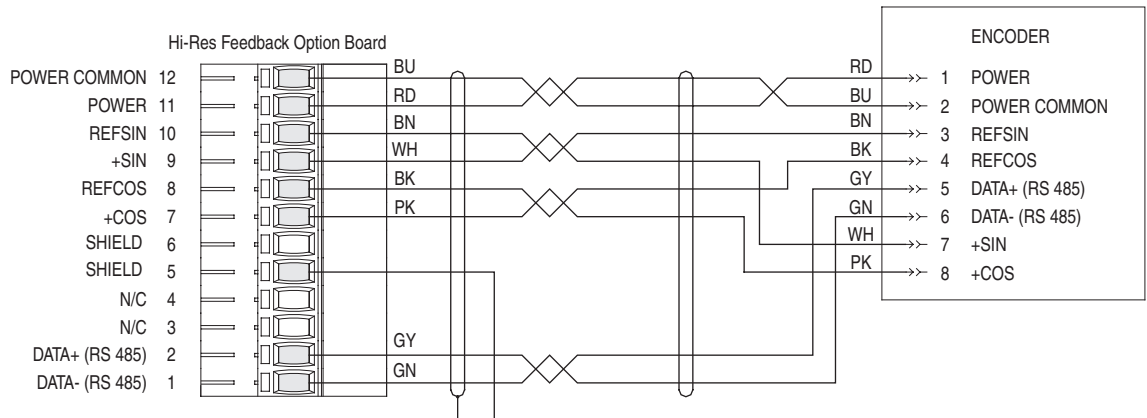
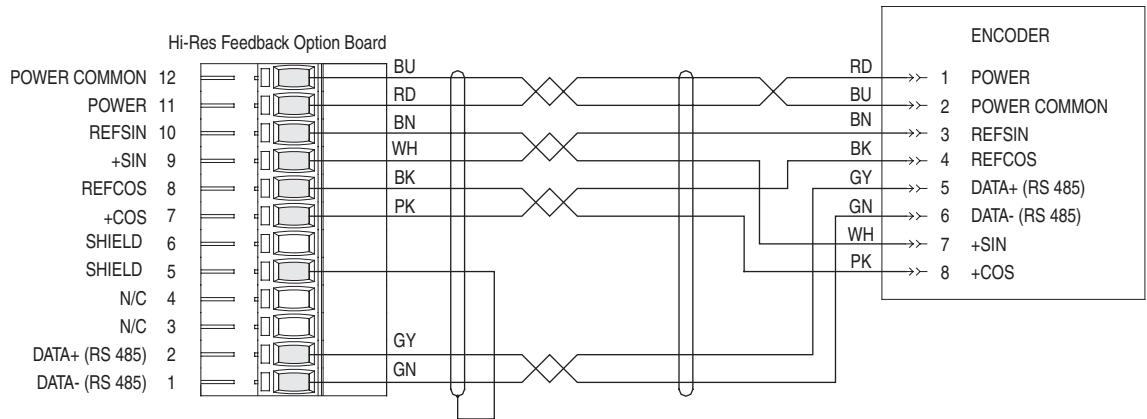


Figure F.9 Pre-attached Stegmann shielded twisted-pair cable



PowerFlex 700S Resolver Feedback Option Card

Chapter Objectives

| For Information on ... | See Page... |
|------------------------------------------------------------------------|---------------------|
| Specifications | G-1 |
| Wiring the Resolver Feedback Option Card to a Resolver | G-3 |

Specifications

Resolver Feedback Option Card Specifications

| Consideration | Description |
|---------------------------|-------------------------------------------------------------|
| Excitation Frequency | 2381 - 9300 Hz |
| Excitation Voltage | 8 - 26 Vrms |
| Resolver Feedback Voltage | 2 Vrms +/- 300 mV |
| Customer-I/O plug (P1) | Allen-Bradley PN: S94262908 Weidmuller PN: BL3.50/90/8BK |

Compatible Resolvers

[Table G.A](#) specifies which resolvers are supported by the PowerFlex 700S Resolver Feedback Option module.

Table G.A Compatible Resolvers.

| Manufacturer | Manufacturer Catalog Number | Notes | Parameter 275 [Reslvr0 Type Sel] Setting for Phase I Firmware 1.17 | Parameter 275 [Reslvr0 Type Sel] Setting for Phase I Firmware 2.XX | Parameter 277 [Reslvr0 Type Sel] Setting for Phase II Firmware 1.XX |
|-------------------------------------|-----------------------------|----------------------------------------------|-----------------------------------------------------------------------------|-----------------------------------------------------------------------------|------------------------------------------------------------------------------|
| Tamagawa | TS-2014N181E32 | x 1, flange-mounted enclosure | 1 - Rel800123-2R | 1 - T2014/2087x1 | 1 - T2014/2087x1 |
| Tamagawa | TS-2014N182E32 | x 2, flange-mounted enclosure | 2 - Rel800123-2S | 2 - T2014/2087x2 | 2 - T2014/2087x2 |
| Tamagawa | TS-2014N185E32 | x 5, flange-mounted enclosure | 3 - Rel800123-2T | 3 - T2014/2087x2 | 3 - T2014/2087x2 |
| Tamagawa | TS-2087N12E9 | x 2, HD foot-mounted enclosure, double shaft | 2 - Rel800123-2S | 2 - T2014/2087x2 | 2 - T2014/2087x2 |
| Tamagawa | TS-2087N1E9 | x 1, HD foot-mounted enclosure | 1 - Rel800123-2R | 1 - T2014/2087x1 | 1 - T2014/2087x1 |
| Tamagawa | TS-2087N2E9 | x 2, HD foot-mounted enclosure | 2 - Rel800123-2S | 2 - T2014/2087x2 | 2 - T2014/2087x2 |
| Tamagawa | TS-2087N5E9 | x 5, HD foot-mounted enclosure | 3 - Rel800123-2T | 3 - T2014/2087x2 | 3 - T2014/2087x2 |
| Tamagawa | TS-2087N11E9 | x 1, HD foot-mounted enclosure, double shaft | 1 - Rel800123-2R | 1 - T2014/2087x1 | 1 - T2014/2087x1 |
| Advanced Micro Controls Inc. (AMCI) | R11X-C10/7 | | N/A | 14 - AmciR11XC107 | 14 - AmciR11XC107 |

Allen-Bradley servo motors may be ordered with factory installed resolvers. [Table G.B](#) specifies which factory installed resolvers are supported by the 700S Resolver Feedback Option module.

Table G.B Compatibility with Resolvers on Allen-Bradley Motors

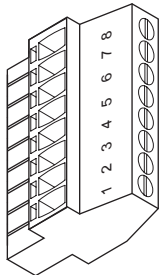
| Motor / Resolver Type | Compatible | Notes | Parameter 275 [Reslvr0 Type Sel] Setting for Phase I Firmware 1.17 | Parameter 275 [Reslvr0 Type Sel] Setting for Phase I Firmware 2.XX | Parameter 277 [Reslvr0 Type Sel] Setting for Phase II Firmware 1.XX |
|------------------------------------------------------|------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------|-----------------------------------------------------------------------------|------------------------------------------------------------------------------|
| 1326 AB 230V Primary Resolver | No | Receiver type resolver - not supported | Not Supported | Not Supported | Not Supported |
| 1326 AB 460V Primary Resolver | Yes | Transmitter type resolver - supported | 9 - AB 164982-8 | 9 - 1326Ax 460v | 9 - 1326Ax 460v |
| 1326 AB 460V Secondary Resolver | Yes | <ul style="list-style-type: none"> Secondary resolver is geared to motor - not intended for motor speed / position feedback Transmitter type resolver - supported | 13 - AB 129214-8 | 13 - Reserved | 13 - Reserved |
| 1326AD 230V Rare Earth Primary Resolver | No | Receiver type resolver - not supported | Not Supported | Not Supported | Not Supported |
| 1326AH 460V Explosion Proof Motor Primary Resolver | Yes | Transmitter type resolver - supported | 9 - AB 164982-8 | 9 - 1326Ax 460v | 9 - 1326Ax 460v |
| 1326AH 460V Explosion Proof Motor Secondary Resolver | Yes | <ul style="list-style-type: none"> Secondary resolver is geared to motor - not intended for motor speed / position feedback Transmitter type resolver - supported | N/A | N/A | N/A |
| 1326AS 460V Rare Earth Primary Resolver | Yes | Transmitter type resolver - supported | 9 - AB 164982-8 | 9 - 1326Ax 460v | 9 - 1326Ax 460v |
| MPL 460V Primary Resolver | Yes | Transmitter type resolver - supported | 4 - AB 155407-8 | 4 - MPL 460v | 4 - MPL 460v |

Recommended Cable

Rockwell Automation strongly recommends the use of Reliance Electric 417900-207CG or Belden 9730 cable for installation, or an equivalent cable that meets these specifications:

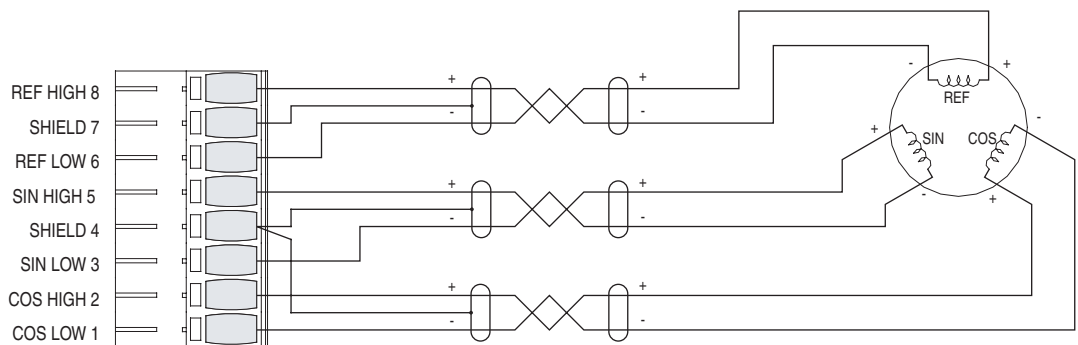
- 3 Twisted Pairs, 80°C, 300V
- Chrome FPR Jacket, Plenum Rated
- Conductor Size: 18 AWG
- Twists Per Inch: 2-3 twists per inch of wire lay per pair
- Capacitance Per Pair: not to exceed 30 pF per foot +/- 0.3 pF as read on a GEN_RAD Model 1658 RLC Digibridge or equivalent
- Capacitance Difference Pair to Pair: not to exceed 0.6 pF per foot as read on a GEN_RAD Model 1658 RLC Digibridge or equivalent
- Resistance per 1000 Feet: 17.15Ω +/- 10%
- Inductance per 1000 Feet: 0.13 mH +/- 10% as read on a GEN_RAD Model 1658 RLC Digibridge or equivalent
- Insulation Thickness: 0.008 in.
- Conductor Stranding 16/30
- Jacket Thickness: 0.018 in.

Wiring the Resolver
Feedback Option Card to a
Resolver

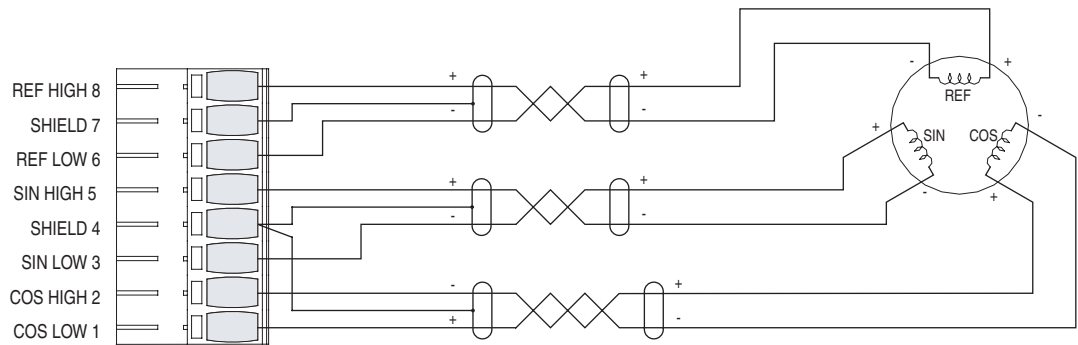
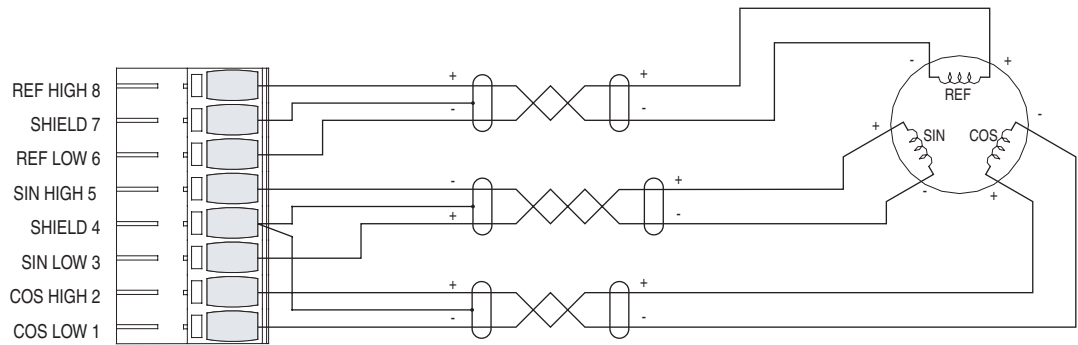
| | Terminal | Signal | Description |
|-----------------------------------------------------------------------------------|----------|----------|--------------------------------------------|
|  | 8 | REF HIGH | Positive Reference signal |
| | 7 | SHIELD | Connection point for resolver cable shield |
| | 6 | REF LOW | Negative Reference signal |
| | 5 | SIN HIGH | Positive Sine signal |
| | 4 | SHIELD | Connection point for resolver cable shield |
| | 3 | SIN LOW | Negative Sine signal |
| | 2 | COS HIGH | Positive Cosine signal |
| | 1 | COS LOW | Negative Cosine signal |

Connection Examples

Resolver Interface - Clockwise Rotation = Count Up



Resolver Interface - Clockwise Rotation = Count Down (Reverse Polarity of Sine or Cosine Signals)



Notes:

PowerFlex 700S Multi-Device Interface (MDI) Option Card

| For information about: | See page |
|--------------------------------------------|---------------------|
| Specifications | H-1 |
| Wiring the MDI Option Card | H-3 |

Specifications

MDI Option Card Specifications

| Consideration | Description |
|---------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Rotary Encoder Voltage Supply | 11.5V DC @ 130 mA |
| Rotary Encoder Hi-Resolution Feedback | Sine/Cosine 1V P-P Offset 2.5 |
| Rotary Encoder Maximum Cable Length | 90m (295 ft.) |
| Linear Encoder Maximum Cable Length | 245m (800 ft.) |
| Rotary Encoder RS-485 Interface | The MDI Option card obtains the following information via the Hyperface RS-485 interface shortly after power-up: <ul style="list-style-type: none"> • Address • Command Number • Mode • Number of turns • Number of Sine/Cos cycles • Checksum |
| Registration Inputs | high speed 12-24V DC sinking digital inputs |
| Customer-I/O plug (P1) | Allen-Bradley PN: S94274917 Weidmuller PN: 67601782 |

Supported Linear Sensors

Temposonics® R-Series Linear sensors with MTS® part numbers ending in 1S2G1102 work with the MDI Option.

| Part Number Character | Characteristic |
|-----------------------|-------------------------------------------------|
| 1 | Input Voltage = +24Vdc |
| S | SSI output |
| 2 | Data Length = 24 Bits |
| G | Output Format = Gray Code |
| 1 | Resolution = 0.005 mm |
| 1 | Performance = Standard |
| 02 | Scale Orientation = Forward-acting Synchronized |

Temposonics® is a registered trademark of MTS Systems Corporation.

Supported Rotary Encoders

Table H.A specifies which encoders work with the MDI Option.

Important: Please note that encoders must be ordered as "Single Ended". This will ensure that the RS-485 channel has the proper termination network installed at the factory.

Table H.A Supported Stegmann Rotary Encoders

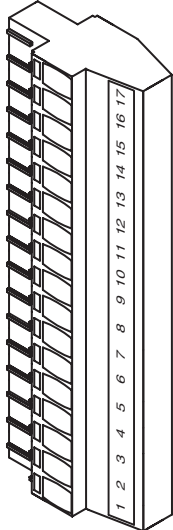
| Model | Resolution | Comment |
|--------------------------------------------|----------------------------------|--------------------------------------------------------------------------------------------------------------------------------------|
| SINCOS® SCS-60, SCS-70, SCM-60, and SCM-70 | 512 sine cycles per revolution. | SCM-60 and SCM-70 have built-in mechanical turns counter. |
| SINCOS® SCS-KIT-101 and SCM-KIT-101 | 1024 sine cycles per revolution. | SCM-60 and SCM-70 have built-in mechanical turns counter. |
| SINCOS® SRS-50, SRS-60, SRM-50, and SRM-60 | 1024 sine cycles per revolution. | SRM-50 and SRM-60 have built-in mechanical turns counter. |
| SINCOS® SRS/M 25 | 1024 sine cycles per revolution | SRS25 and SRM25 have built-in mechanical turns counter. IP65 Protection Class. Size 25 square flange mounting. |
| SINCOS® SRS660 | 1024 sine cycles per revolution | Hollow-shaft up to 14 mm diameter |
| SINCOS® SHS-170 | 512 sine cycles per revolution. | While the software supports this encoder, the SHS-170 draws excessive current and should only be used with an external power supply. |

SINCOS®, SINCODER® and LINCODER® are registered trademarks of Stegmann Inc.

Recommended Cables

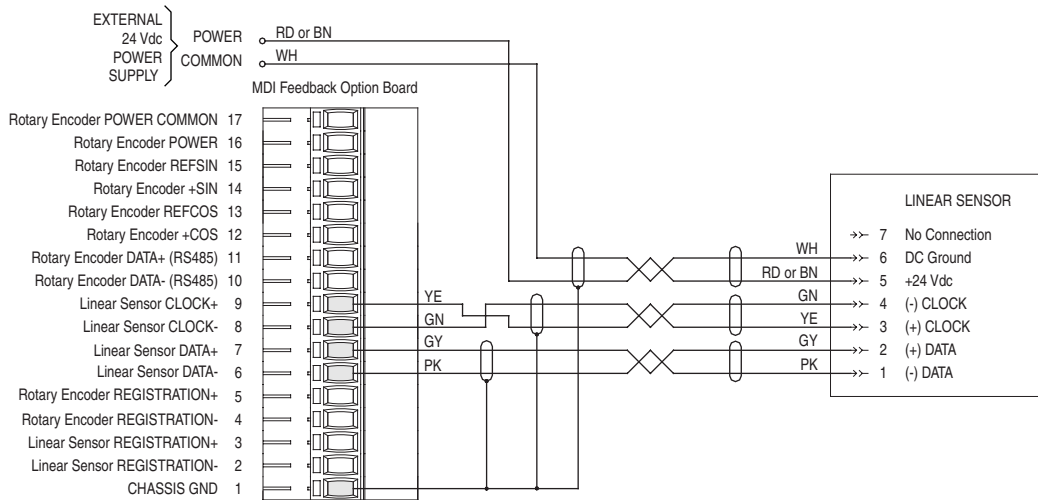
| If you are using this motor and feedback device: | Use this cable: | See this wiring diagram: |
|------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------|----------------------------------------|
| Temposonics R-Series Linear sensors with MTS part numbers ending in 1S2G1102 | Mating MTS molded extension cable for RG connector or integral P cable | Figure H.1 on page H-3 |
| Allen-Bradley 1326AB-BXXXX-M2L, -M2KXL, -S2L, and -S2KXL motors with embedded Stegmann rotary encoder | Allen-Bradley 2090-CDNFDMP-SXX | Figure H.2 on page H-4 |
| Allen-Bradley MPL-A5xx and MPL-Bxxx motors with embedded Stegmann rotary encoder | Allen-Bradley 2090-CDNFDMP-SXX | Figure H.2 on page H-4 |
| Allen-Bradley 1326AB-BXXXX-M2L, -M2KXL, -S2L, and -S2KXL motors with embedded Stegmann rotary encoder | Allen-Bradley 2090-XXNFMP-SXX | Figure H.3 on page H-4 |
| Allen-Bradley MPL-A5xx and MPL-Bxxx motors with embedded Stegmann rotary encoder | Allen-Bradley 2090-XXNFMP-SXX | Figure H.3 on page H-4 |
| Allen-Bradley MPL-A3xx - MPL-A45xx and all MPG series motors with embedded Stegmann rotary encoder | Allen-Bradley 2090-XXNFMP-SXX | Figure H.4 on page H-4 |
| Allen-Bradley MPL-A3xx - MPL-A45xx and all MPG series motors with embedded Stegmann rotary encoder | Allen-Bradley 2090-UXNFDMP-SXX | Figure H.5 on page H-5 |
| Any other motor with external Stegmann SHS-170 rotary encoder | Stegmann shielded twisted-pair cable with 12-pin DIN style connector | Figure H.6 on page H-5 |
| Any other motor with external Stegmann SCS-60, SCS-70, SCM-60 or SCM-70, SRS-50, SRS-60, SRM-60, SRM-60, SRS-25 or SRM-25 rotary encoder | Stegmann shielded twisted-pair cable with 10-pin MS style connector | Figure H.7 on page H-5 |
| Any other motor with external Stegmann SCS-Kit 101 or SCK-Kit 101 rotary encoder | Stegmann shielded twisted-pair cable with 8-pin Berg style connector | Figure H.8 on page H-6 |
| Any other motor with external Stegmann SRS660 rotary encoder | Is available only with pre-attached Stegmann shielded twisted-pair cable of various lengths | Figure H.9 on page H-6 |

Wiring the MDI Option Card

| | Terminal | Signal | Description |
|-----------------------------------------------------------------------------------|----------|------------------------------|----------------------------------------------------------|
|  | 17 | Rotary Encoder POWER COMMON | Power supply for Rotary Encoder interface |
| | 16 | Rotary Encoder POWER | |
| | 15 | Rotary Encoder REFSIN | Positive Sine signal for Rotary Encoder interface |
| | 14 | Rotary Encoder +SIN | Negative Sine signal for Rotary Encoder interface |
| | 13 | Rotary Encoder REFCOS | Negative Cosine signal for Rotary Encoder interface |
| | 12 | Rotary Encoder +COS | Positive Cosine signal for Rotary Encoder interface |
| | 11 | Rotary Encoder DATA+ (RS485) | Positive DH485 terminal for Rotary Encoder interface |
| | 10 | Rotary Encoder DATA- (RS485) | Negative DH485 terminal for Rotary Encoder interface |
| | 9 | Linear Sensor CLOCK+ | Positive Clock terminal for Linear Sensor interface |
| | 8 | Linear Sensor CLOCK- | Negative Clock terminal for Linear Sensor interface |
| | 7 | Linear Sensor DATA+ | Positive SSI terminal for Linear Sensor interface |
| | 6 | Linear Sensor DATA- | Negative SSI terminal for Linear Sensor interface |
| | 5 | Rotary Encoder REGISTRATION+ | Positive terminal for Rotary Encoder registration strobe |
| | 4 | Rotary Encoder REGISTRATION- | Negative terminal for Rotary Encoder registration strobe |
| | 3 | Linear Sensor REGISTRATION+ | Positive terminal for Linear Sensor registration strobe |
| | 2 | Linear Sensor REGISTRATION- | Negative terminal for Linear Sensor registration strobe |
| | 1 | CHASSIS GND | Connection point for cable shields |

Connection Examples

Figure H.1 Linear Sensor connections with MDI RG connector or P integral cable



Connection Examples

Figure H.2 Rotary Encoder connections for MPL-A5xx and MPL-Bxxx motors or 1326AB-BXXXX-M2L, -M2KXL, -S2L, and -S2KXL motors with 2090-CDNFMP-SXX cable

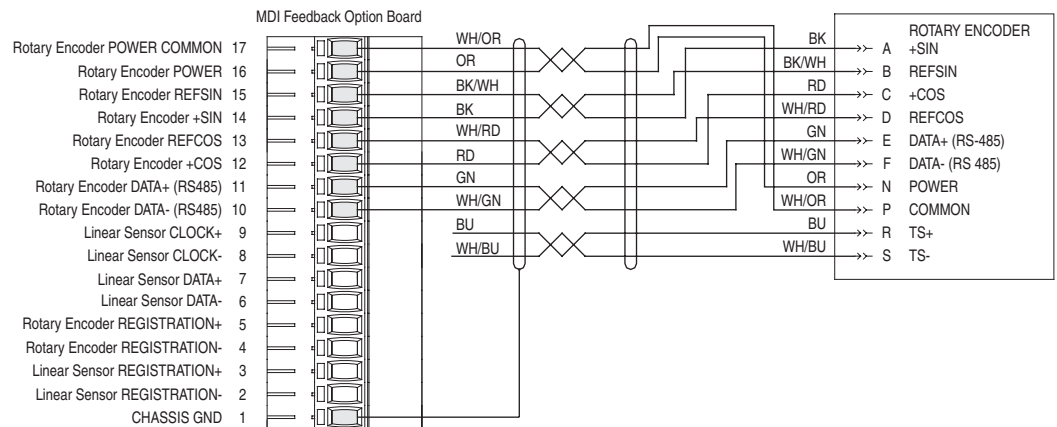
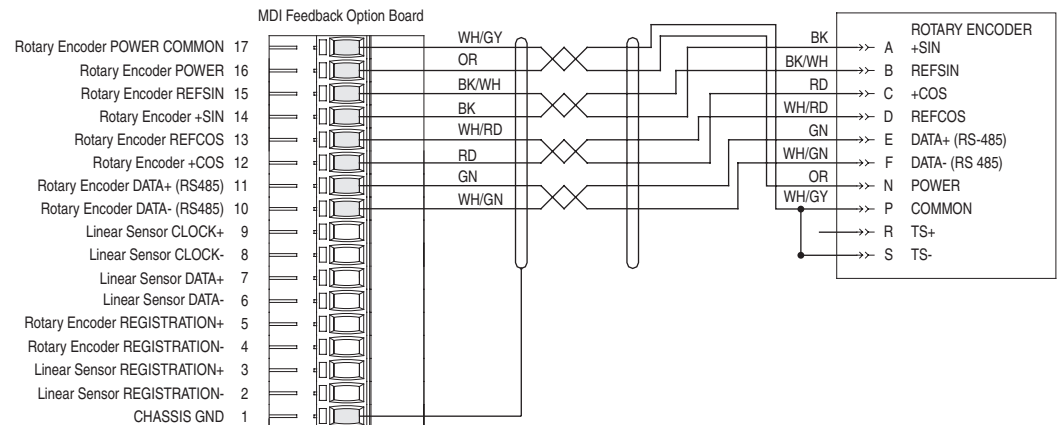
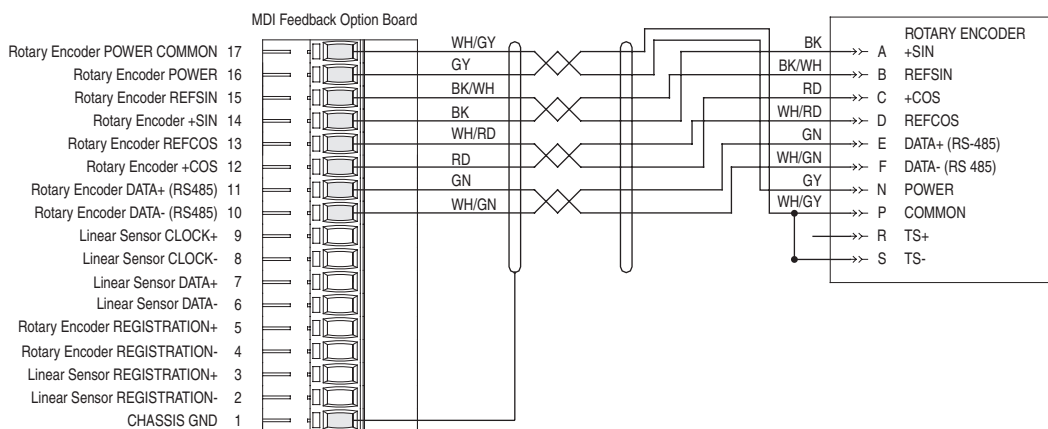


Figure H.3 Rotary Encoder connections for MPL-A5xx and MPL-Bxxx motors or 1326AB-BXXXX-M2L, -M2KXL, -S2L, and -S2KXL motors with 2090-XXNFMP-SXX cable



Note: Thermal Switch cannot be accessed using 2090-XXNFMP-SXX cable.

Figure H.4 Rotary Encoder connections for MPL-A3xx - MPL-A45xx and all MPG series motors with 2090-XXNFMP-SXX cable



Note: Thermal Switch cannot be accessed using 2090-XXNFMP-SXX cable.

Connection Examples

Figure H.5 Rotary Encoder connections for MPL-A3xx - MPL-A45xx and all MPG series motors with 2090-UXNFDMP-SXX cable

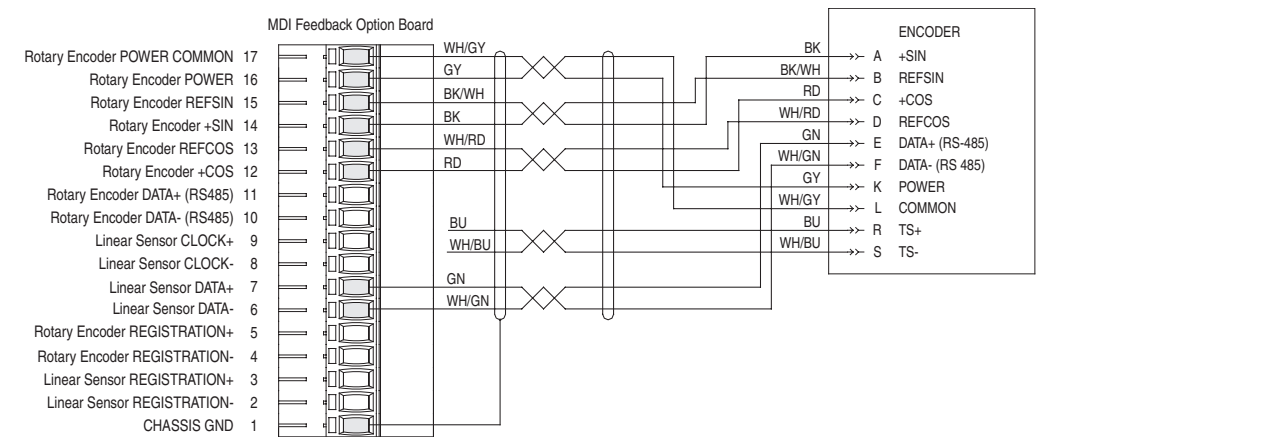


Figure H.6 Stegmann shielded twisted-pair cable with 12-pin DIN style connector

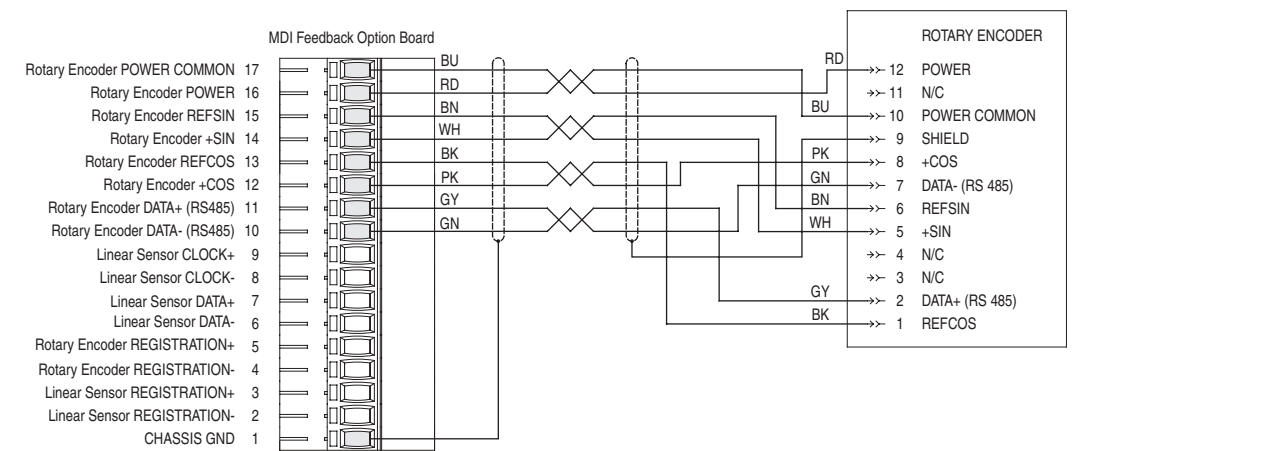
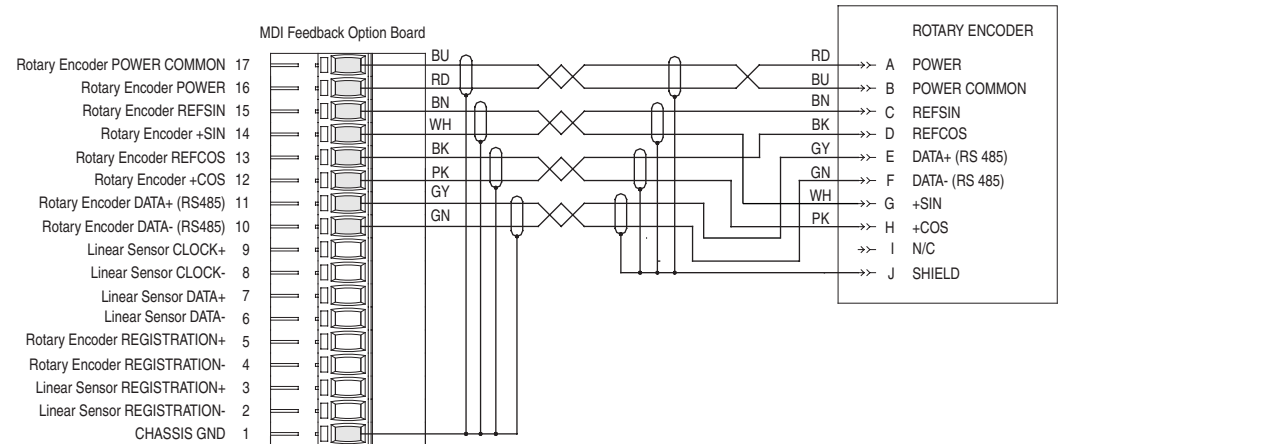


Figure H.7 Rotary Encoder connections with Stegmann shielded twisted-pair cable and 10-pin MS style connector



Connection Examples

Figure H.8 Rotary Encoder connections with Stegmann shielded twisted-pair cable and 8-pin Berg style connector

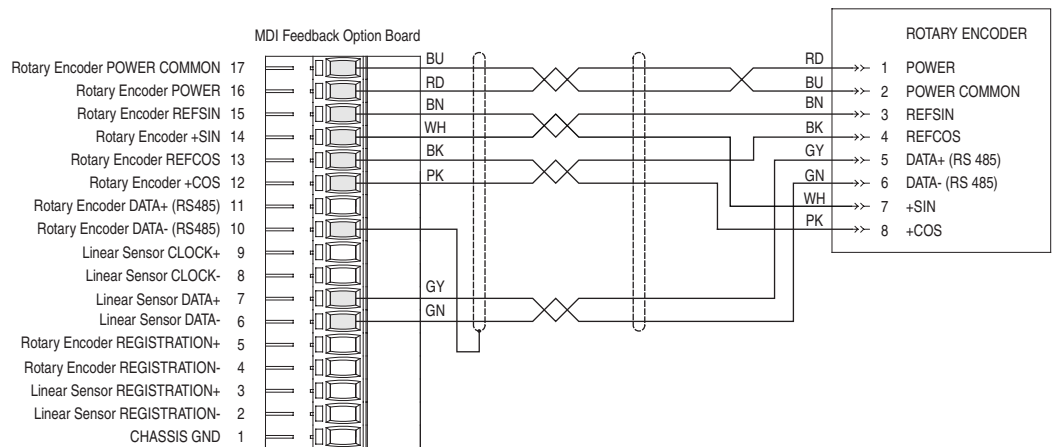


Figure H.9 Rotary Encoder connections with Stegmann pre-attached shielded twisted-pair cable

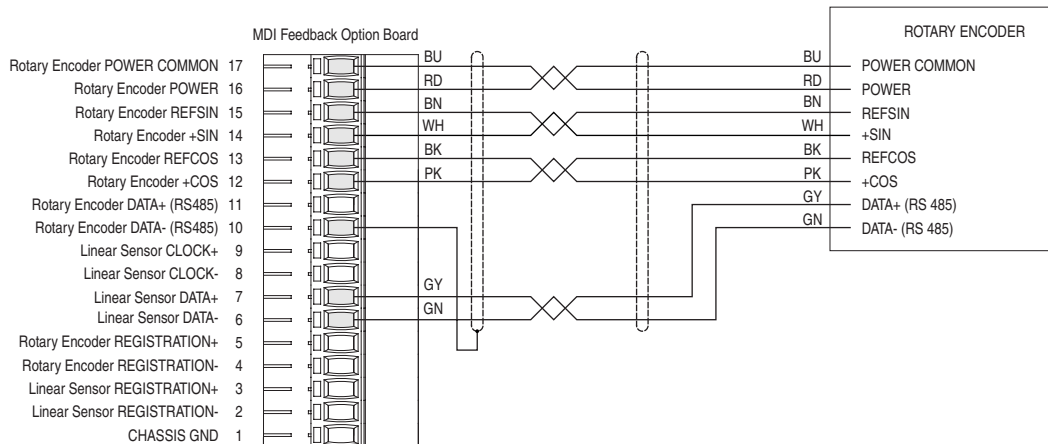
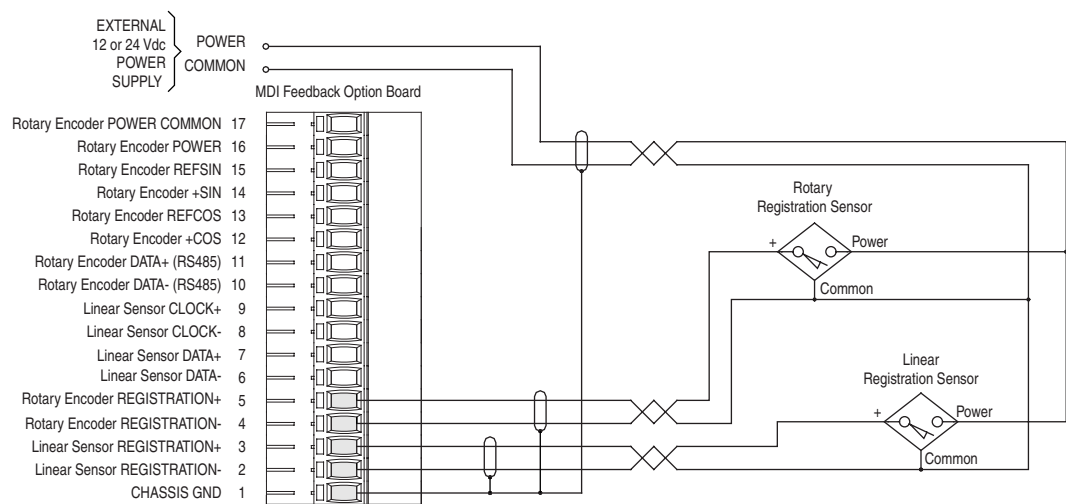


Figure H.10 Registration Sensor connection



PowerFlex 700S Permanent Magnet Motor Specifications

Compatible Permanent Magnet Motors

The following table contains a list of specifications for the permanent magnet motors compatible with PowerFlex 700S drives. Note that you must have a high resolution Stegmann or compatible resolver.

Table I.A Motor Name Plate and Rating Specifications

| Model Number | Motor NP Volts (line to line V rms) | Motor NP FLA (A rms) | Motor NP Frequency (Hz) | Motor NP RPM (oper. rpm) | Motor NP Power (KW) | Motor Poles | Current peak (A rms) | System Cont. Stall Torque (N-m) | Motor Max RPM (rpm) |
|--------------|----------------------------------------|-------------------------|----------------------------|-----------------------------|------------------------|----------------|-------------------------|---------------------------------------|------------------------|
| Parameter # | 1 | 2 | 3 | 4 | 5 | 7 | | | |
| MPL-A310P | 230 | 3.4 | 294.0 | 4410 | 0.73 | 8 | 9.9, | 1.58 | 5000 |
| MPL-A310F | 230 | 2.1 | 185.3 | 2780 | 0.46 | 8 | 6.6 | 1.58 | 3000 |
| MPL-A320P | 230 | 6.4 | 271.3 | 4070 | 1.30 | 8 | 20.9 | 3.05 | 5000 |
| MPL-A320H | 230 | 4.6 | 208.7 | 3130 | 1.00 | 8 | 13.6 | 3.05 | 3500 |
| MPL-A330P | 230 | 8.5 | 280.7 | 4210 | 1.80 | 8 | 26.9 | 4.08 | 5000 |
| MPL-A420P | 230 | 9.0 | 268.7 | 4030 | 2.00 | 8 | 32.5 | 4.74 | 5000 |
| MPL-A430P | 230 | 11.9 | 234.0 | 3510 | 2.20 | 8 | 47.4 | 5.99 | 5000 |
| MPL-A430H | 230 | 8.6 | 184.7 | 2770 | 1.80 | 8 | 31.8 | 6.21 | 3500 |
| MPL-A4520P | 230 | 12.4 | 234.0 | 3510 | 2.20 | 8 | 35.4 | 5.99 | 5000 |
| MPL-A4520K | 230 | 10.6 | 223.3 | 3350 | 2.10 | 8 | 30.4 | 5.99 | 4000 |
| MPL-A4530F | 230 | 9.5 | 144.7 | 2170 | 1.90 | 8 | 29.7 | 8.36 | 2800 |
| MPL-A4530K | 230 | 14.4 | 196.0 | 2940 | 2.50 | 8 | 43.8 | 8.13 | 4000 |
| MPL-A4540C | 230 | 6.6 | 93.3 | 1400 | 1.50 | 8 | 20.5 | 10.20 | 1500 |
| MPL-A4540F | 230 | 13.0 | 162.0 | 2430 | 2.60 | 8 | 38.2 | 10.20 | 3000 |
| MPL-A520K | 230 | 16.3 | 208.0 | 3120 | 3.50 | 8 | 46.0 | 10.70 | 4000 |
| MPL-A540K | 230 | 29.3 | 180.7 | 2710 | 5.50 | 8 | 84.9 | 19.40 | 4000 |
| MPL-A560F | 230 | 29.3 | 125.3 | 1880 | 5.50 | 8 | 84.9 | 27.90 | 3000 |
| | | | | | | | | | |
| MPL-B310P | 460 | 1.7 | 310.0 | 4650 | 0.77 | 8 | 3.0 | 1.58 | 5000 |
| MPL-B320P | 460 | 3.2 | 313.3 | 4700 | 1.50 | 8 | 5.0 | 3.05 | 5000 |
| MPL-B330P | 460 | 4.3 | 274.0 | 4110 | 1.80 | 8 | 7.0 | 4.18 | 5000 |
| MPL-B420P | 460 | 4.5 | 255.3 | 3830 | 1.90 | 8 | 9.2 | 4.74 | 5000 |
| MPL-B430P | 460 | 6.5 | 214.0 | 3210 | 2.20 | 8 | 12.0 | 6.55 | 5000 |
| MPL-B4520P | 460 | 6.0 | 236.7 | 3550 | 2.10 | 8 | 17.0 | 5.65 | 5000 |
| MPL-B4530F | 460 | 5.0 | 162.0 | 2430 | 2.10 | 8 | 13.4 | 8.25 | 3000 |
| MPL-B4530K | 460 | 7.8 | 200.7 | 3010 | 2.60 | 8 | 19.1 | 8.25 | 4000 |
| MPL-B4540F | 460 | 6.4 | 162.0 | 2430 | 2.60 | 8 | 16.3 | 10.20 | 3000 |
| MPL-B4560F | 460 | 8.3 | 144.7 | 2170 | 3.20 | 8 | 25.5 | 14.10 | 3000 |
| MPL-B520K | 460 | 8.1 | 208.0 | 3120 | 3.50 | 8 | 23.3 | 10.70 | 4000 |
| MPL-B540K | 460 | 14.5 | 177.3 | 2660 | 5.40 | 8 | 42.4 | 19.40 | 4000 |
| MPL-B560F | 460 | 14.5 | 130.7 | 1960 | 5.50 | 8 | 42.4 | 26.80 | 3000 |
| MPL-B580F | 460 | 18.4 | 132.7 | 1990 | 7.10 | 8 | 66.5 | 34.00 | 3000 |
| MPL-B580J | 460 | 22.6 | 148.0 | 2220 | 7.90 | 8 | 66.5 | 34.00 | 3800 |
| MPL-B640F | 460 | 22.7 | 106.0 | 1590 | 6.11 | 8 | 46.0 | 36.70 | 3000 |
| MPL-B660F | 460 | 27.2 | 81.3 | 1220 | 6.15 | 8 | 67.9 | 48.00 | 3000 |
| MPL-B680D | 460 | 24.0 | 94.0 | 1410 | 9.30 | 8 | 66.5 | 62.80 | 2000 |
| MPL-B680F | 460 | 33.9 | 79.3 | 1190 | 7.50 | 8 | 67.9 | 60.00 | 3000 |
| MPL-B860D | 460 | 33.6 | 96.0 | 1440 | 12.50 | 8 | 67.5 | 83.10 | 2000 |
| MPL-B880C | 460 | 33.6 | 72.7 | 1090 | 12.60 | 8 | 69.0 | 110.00 | 1500 |
| MPL-B880D | 460 | 40.3 | 86.7 | 1300 | 15.00 | 8 | 113.2 | 110.00 | 2000 |
| MPL-B960B | 460 | 29.7 | 62.0 | 930 | 12.70 | 8 | 63.6 | 130.00 | 1200 |
| MPL-B960C | 460 | 38.9 | 76.0 | 1140 | 14.80 | 8 | 88.4 | 124.30 | 1500 |
| MPL-B960D | 460 | 50.2 | 76.7 | 1150 | 15.00 | 8 | 102.5 | 124.30 | 2000 |
| MPL-B980B | 460 | 31.8 | 59.3 | 890 | 15.02 | 8 | 70.7 | 162.70 | 1000 |

| Model Number | Motor NP Volts (line to line V rms) | Motor NP FLA (A rms) | Motor NP Frequency (Hz) | Motor NP RPM (oper. rpm) | Motor NP Power (KW) | Motor Poles | Current peak (A rms) | System Cont. Stall Torque (N-m) | Motor Max RPM (rpm) |
|--------------|----------------------------------------|-------------------------|----------------------------|-----------------------------|---------------------|----------------|-------------------------|---------------------------------------|------------------------|
| MPL-B980C | 460 | 48.2 | 67.3 | 1010 | 16.80 | 8 | 99.0 | 158.20 | 1500 |
| MPL-B980D | 460 | 63.6 | 74.7 | 1120 | 18.60 | 8 | 141.4 | 158.20 | 2000 |
| | | | | | | | | | |
| MPG-A004-031 | 230 | 1.8 | 222.7 | 3340 | 0.21 | 8 | 4.0 | 0.60 | 6000 |
| MPG-A010-031 | 230 | 2.1 | 189.3 | 2840 | 0.36 | 8 | 6.0 | 1.21 | 4875 |
| MPG-A010-091 | 230 | 0.9 | 295.3 | 4430 | 0.19 | 8 | 2.3 | 0.41 | 5900 |
| MPG-A025-031 | 230 | 9.9 | 181.0 | 1810 | 0.88 | 12 | 19.8 | 4.65 | 5200 |
| MPG-A025-091 | 230 | 3.0 | 168.0 | 1680 | 0.52 | 12 | 8.5 | 2.95 | 5625 |
| MPG-A050-031 | 230 | 24.7 | 120.0 | 1200 | 1.50 | 12 | 53.0 | 11.90 | 2510 |
| MPG-A050-091 | 230 | 5.0 | 275.0 | 2750 | 0.75 | 12 | 15.6 | 2.60 | 3775 |
| MPG-A110-031 | 230 | 20.2 | 122.0 | 1220 | 2.20 | 12 | 53.0 | 17.20 | 2875 |
| MPG-A110-091 | 230 | 17.0 | 184.0 | 1840 | 1.60 | 12 | 33.2 | 8.30 | 3500 |
| | | | | | | | | | |
| MPG-B010-031 | 460 | 1.6 | 162.7 | 2440 | 0.34 | 8 | 4.4 | 1.33 | 6450 |
| MPG-B010-091 | 460 | 0.7 | 357.3 | 5360 | 0.23 | 8 | 1.5 | 0.41 | 6450 |
| MPG-B025-031 | 460 | 4.0 | 219.0 | 2190 | 0.92 | 12 | 11.3 | 4.02 | 4838 |
| MPG-B025-091 | 460 | 1.9 | 175.0 | 1750 | 0.54 | 12 | 5.2 | 2.95 | 5900 |
| MPG-B050-031 | 460 | 16.3 | 92.0 | 920 | 1.20 | 12 | 32.5 | 12.40 | 2510 |
| MPG-B050-091 | 460 | 3.4 | 290.0 | 2900 | 0.79 | 12 | 9.9 | 2.60 | 4560 |
| MPG-B110-031 | 460 | 12.9 | 112.0 | 1120 | 2.00 | 12 | 31.1 | 17.00 | 2420 |
| MPG-B110-091 | 460 | 10.6 | 184.0 | 1840 | 1.60 | 12 | 20.5 | 8.30 | 3500 |
| | | | | | | | | | |
| 1326AB-B410G | 460 | 2.5 | 118.0 | 3540 | 1.00 | 4 | 7.4 | 2.70 | 5000 |
| 1326AB-B410J | 460 | 3.5 | 165.0 | 4950 | 1.40 | 4 | 10.4 | 2.70 | 7250 |
| 1326AB-B420E | 460 | 2.8 | 70.0 | 2100 | 1.10 | 4 | 8.5 | 5.00 | 3000 |
| 1326AB-B420H | 460 | 5.5 | 137.3 | 4120 | 2.20 | 4 | 15.6 | 5.10 | 6000 |
| 1326AB-B430E | 460 | 3.9 | 67.7 | 2030 | 1.40 | 4 | 11.7 | 6.60 | 3000 |
| 1326AB-B430G | 460 | 5.6 | 114.3 | 3430 | 2.30 | 4 | 16.8 | 6.40 | 5000 |
| 1326AB-B515E | 460 | 6.1 | 70.3 | 2110 | 2.30 | 4 | 18.3 | 10.40 | 3000 |
| 1326AB-B515G | 460 | 9.5 | 88.7 | 2660 | 2.90 | 4 | 28.5 | 10.40 | 5000 |
| 1326AB-B520E | 460 | 6.7 | 71.0 | 2130 | 2.90 | 4 | 20.1 | 13.00 | 3000 |
| 1326AB-B520F | 460 | 8.8 | 70.3 | 2110 | 2.90 | 4 | 26.4 | 13.10 | 3500 |
| 1326AB-B530E | 460 | 9.5 | 74.3 | 2230 | 4.20 | 4 | 28.5 | 18.00 | 3000 |
| 1326AB-B720E | 460 | 17.5 | 70.0 | 2100 | 6.80 | 4 | 52.5 | 30.90 | 3500 |
| 1326AB-B720F | 460 | 27.5 | 117.0 | 3510 | 11.70 | 4 | 66.5 | 31.80 | 5000 |
| 1326AB-B730E | 460 | 22.8 | 78.3 | 2350 | 9.60 | 4 | 66.5 | 39.00 | 3350 |
| 1326AB-B740C | 460 | 20.9 | 52.3 | 1570 | 8.70 | 4 | 62.7 | 53.00 | 2200 |
| 1326AB-B740E | 460 | 32.0 | 79.7 | 2390 | 12.70 | 4 | 66.5 | 50.80 | 3400 |
| | | | | | | | | | |
| 1326AS-B310H | 460 | 0.8 | 204.5 | 4090 | 0.30 | 6 | 2.4 | 0.70 | 6200 |
| 1326AS-B330H | 460 | 2.1 | 204.5 | 4090 | 0.90 | 6 | 6.0 | 2.10 | 6500 |
| 1326AS-B420G | 460 | 2.6 | 179.0 | 3580 | 1.20 | 6 | 7.8 | 3.20 | 5250 |
| 1326AS-B440G | 460 | 5.4 | 149.0 | 2980 | 2.00 | 6 | 16.2 | 6.40 | 5250 |
| 1326AS-B460F | 460 | 6.2 | 148.5 | 2970 | 2.80 | 6 | 18.6 | 9.00 | 4300 |
| 1326AS-B630F | 460 | 7.8 | 142.7 | 2140 | 2.40 | 8 | 18.5 | 10.70 | 4500 |
| 1326AS-B660E | 460 | 11.8 | 100.7 | 1510 | 3.40 | 8 | 29.8 | 21.50 | 3000 |
| 1326AS-B690E | 460 | 19.0 | 87.3 | 1310 | 5.00 | 8 | 41.3 | 36.40 | 3000 |
| 1326AS-B840E | 460 | 21.2 | 79.3 | 1190 | 4.70 | 8 | 39.5 | 37.60 | 3000 |
| 1326AS-B860C | 460 | 17.6 | 77.3 | 1160 | 6.00 | 8 | 44.4 | 49.30 | 2000 |
| | | | | | | | | | |
| 1326AH-B330F | 460 | 2.1 | 0.0 | 3000 | 0.75 | - | 9.0 | - | 3000 |
| 1326AH-B440F | 460 | 3.3 | 0.0 | 2500 | 1.22 | - | 13.8 | - | 2500 |
| 1326AH-B540F | 460 | 11.1 | 0.0 | 2500 | 2.60 | - | 47.2 | - | 2500 |
| | | | | | | | | | |
| 3050R-7 | 390 | 66.0 | 50.0 | 500 | 30.00 | 12 | 132.0 | - | 500 |
| 11050R-7 | 390 | 218.0 | 50.0 | 500 | 110.00 | 12 | 436.0 | - | 500 |

Instructions for ATEX Approved PowerFlex 700S, Phase II Drives in Group II Category (2) Applications with ATEX Approved Motors

General Information

This document provides information on operation of an ATEX Approved drive and ATEX approved motor. The motor is located in a defined hazardous environment, while the drive is not. A protective system is required to stop current flow to the motor when an over temperature condition has been sensed in the motor. When sensed, the drive will go into a stop condition. To restart the drive, the over temperature condition must be resolved, followed by a valid start command to the drive. The PowerFlex 700S Phase II drive must have the DriveGuard® Safe-Off with Second Encoder option board installed for ATEX applications. Consult the option board User Manual for installation instructions if necessary.

The drive is manufactured under the guidelines of the ATEX directive 94/9/EC. These Drives are in Group II Category (2) Applications with ATEX Approved Motors. Certification of the drive for the ATEX group and category on its nameplate requires installation, operation, and maintenance according to this document and to the requirements found in the User Manual and appropriate Motor Instruction Manual(s).

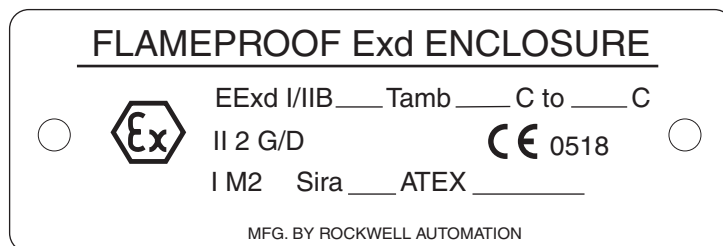


ATTENTION: Operation of this ATEX certified drive with an ATEX certified motor that is located in a hazardous environment requires additional installation, operation, and maintenance procedures beyond those stated in the standard user manual. Equipment damage and/or personal injury may result if all additional instructions in this document are not observed.

Motor Requirements

- The motor must be manufactured under the guidelines of the ATEX directive 94/9/EC. It must be installed, operated, and maintained per the motor manufacturer supplied instructions.
- Only motors with nameplates marked for use on an inverter power source, and labeled for specific hazardous areas, may be used in hazardous areas on inverter (variable frequency) power.
- When the motor is indicated for ATEX Group II Category 2 for use in gas environments (Category 2G) the motor must be of flameproof construction, EEx d (according to EN50018) or Ex d (according to EN60079-1 or IEC60079-1). Group II motors are marked with a temperature or a temperature code.

- When the motor is indicated for ATEX Group II Category 2 for use in dust environments (Category 2D) the motor must be protected by an enclosure (according to EN50281-1-1 or according to IEC61241-1: Ex tD). Group II motors are marked with a temperature.
- The motor over temperature signal supplied to the drive must be a normally closed contact (open during over temperature condition) compatible with the digital (logic) input circuitry of the drive. If multiple sensors are required in the motor, the connection at the drive must be the resultant of all required contacts wired in series.
- Refer to all product markings for additional cautions that may apply.
- Typical motor markings are contained on a motor certification nameplate similar to the sample below.

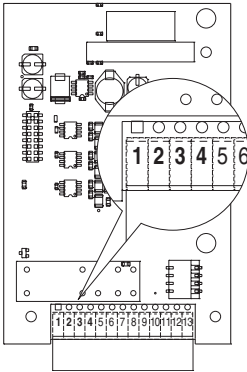


Drive Wiring

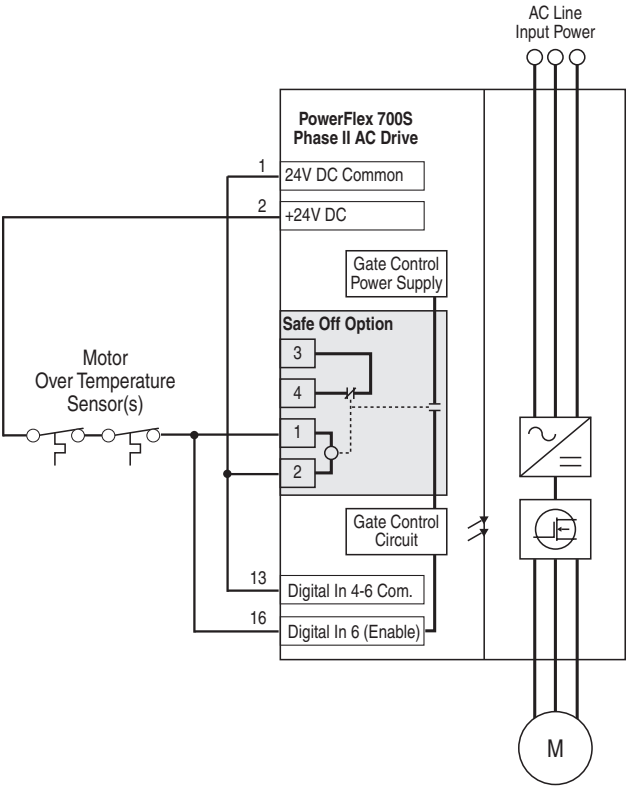
Important: ATEX certification of this drive requires that 2 separate inputs be configured to monitor a normally closed over temperature contact (or multiple contacts wired in series) presented to the drive from the motor.

The first input must energize “Digital Input6/Hardware Enable” on the drive control board (TB2, terminal 16). The second input must energize the relay coil on the DriveGuard® Safe-Off with Second Encoder option board (terminals 1 & 2 on the board). This option board must be installed in the drive for ATEX applications. It is offered with a 24V DC coil only. Both input signals are wired with respect to the drive's digital input common when using a control board with 24V I/O. Motor supplied contacts must have ratings compatible with the input circuit ratings and applied voltage level of the drive.

Safe-Off Terminal Descriptions

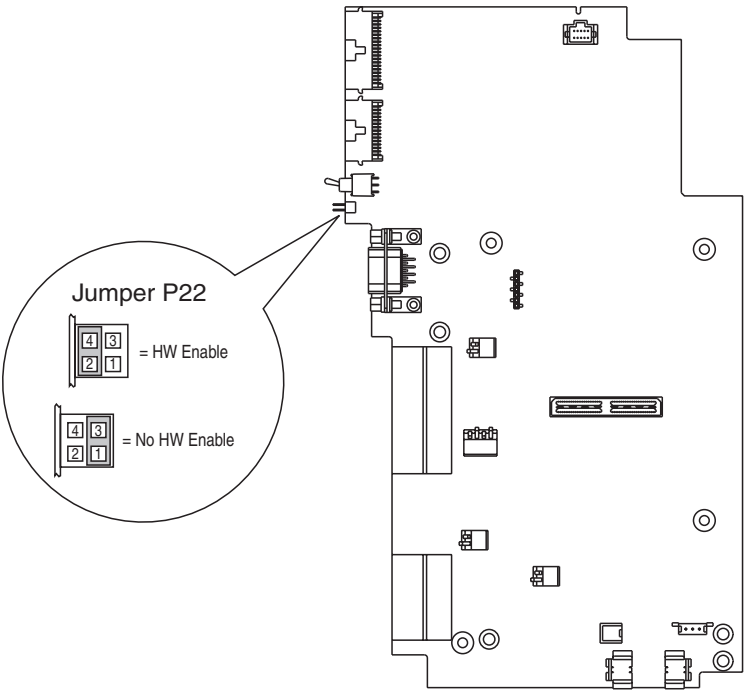
|  | No. | Signal | Description |
|-----------------------------------------------------------------------------------|-----|----------------|----------------------------------------------------------------------------------------------------------------------------------|
| | 1 | +24V DC | Connections for power to energize coil. |
| | 2 | 24V Common | 33.3 mA typical, 55 mA maximum. |
| | 3 | Monitor - N.C. | Normally closed contacts for monitoring relay status. |
| | 4 | Common - N.C. | Maximum Resistive Load: 250V AC / 30V DC / 50 VA / 60 Watts Maximum Inductive Load: 250V AC / 30V DC / 25 VA / 30 Watts |

Wiring Example



Drive Hardware Configuration

Digital Input 6 must be configured as a Hardware Enable. Ensure that Jumper P22 on the Main Control Board is set to HW Enable (Pins 2 and 4).



Verify Operation

At regular intervals during the life of the machine check the protective system for proper operation. Both channels shall be verified using the table below. How frequently the protective system is checked is dependent on the safety analysis of the machine section controlled by the drive.

| Protective System Status | Drive In Safe State | Drive In Safe State | Drive In Safe State | Drive Able To Run |
|----------------------------------------------------------------------|-------------------------|-------------------------|-------------------------|-------------------------|
| Channel Operation | | | | |
| Safe-Off Option Terminals 1 & 2 | No Power Applied | Power Applied | No Power Applied | Power Applied |
| PowerFlex 700S Phase II Enable Input | No Power Applied | No Power Applied | Power Applied | Power Applied |
| Description For Verification | | | | |
| Safe-Off Option Monitor Contact Terminals 3 & 4 | Closed | Open | Closed | Open |
| PowerFlex 700S Phase II Drive Inhibits Param. 156, Bits 1 & 16 | Bit 16 = 1 Bit 1 = 1 | Bit 16 = 0 Bit 1 = 1 | Bit 16 = 1 Bit 1 = 0 | Bit 16 = 0 Bit 1 = 0 |

SynchLink™ Board for PowerFlex® 700S Drives with Phase II Control

What is SynchLink?

SynchLink is a fiber optic communication link that allows its users to implement distributed motion and drive systems based on ControlLogix and PowerFlex700S products.

SynchLink should be used in conjunction with a standard control network, such as ControlNet or Ethernet/IP. A standard network is used for general control interlocking and transfer of diagnostic data across the system. SynchLink does not function as a standard control network (e.g. it only broadcasts data).

The PowerFlex 700S Drives transfer two types of data between drives, including:

- **Direct** - Data delivered in a single message. A SynchLink message can contain a maximum of four direct data words; each word is 32 bits in length. Direct data can be automatically forwarded to the next SynchLink node in the daisy chain or ring configurations.
- **Buffered** - Data that exceeds the four word limit of a direct data transfer. Buffered data is appropriately segmented at the transmitting device and reassembled at the receiving device. Buffered data cannot be automatically forwarded to the next SynchLink node in the daisy chain and ring configurations.

Refer to the *SynchLink Design Guide*, publication 1756-TD008..., when planning and connecting the SynchLink network.

Refer to *SynchLink™ Board for PowerFlex® 700S Drives with Phase II Control*, publication 20D-IN010..., for information on installing the SynchLink option board.

Table K.A SynchLink Cables and Accessories

| Description | Cat. No. |
|------------------------------------------------|-------------|
| 2 x 25 cm Fiber Optic Link | 1403-CF 000 |
| 2 x 1 M Fiber Optic Link | 1403-CF 001 |
| 2 x 3 M Fiber Optic Link | 1403-CF 003 |
| 2 x 5 M Fiber Optic Link | 1403-CF 005 |
| 10 M Fiber Optic Link | 1403-CF 010 |
| 20 M Fiber Optic Link | 1403-CF 020 |
| 50 M Fiber Optic Link | 1403-CF 050 |
| 100 M Fiber Optic Link | 1403-CF 100 |
| 250 M Fiber Optic Link | 1403-CF 250 |
| 500 M Fiber Optic Bulk | 1403-CF BLK |
| Termination Kit | 1403-NTOL |
| Connector (10) | 1403-N10 |
| Splice Bushing (5) | 1403-N11 |
| Pulling Bullet | 1403-N12 |
| Fiber Stripper Tool | 1403-N13 |
| SynchLink Fiber-Hub, 1 input, Base | 1751-SLBA |
| SynchLink Fiber-Hub, 4 output, "Star" Splitter | 1751-SL4SP |
| SynchLink Bypass Switch | 1751-SLBP/A |

Important: Do not overtighten tie-wraps.

Table K.B Fiber Optic Cable Assembly Specification

| Parameter | Value |
|----------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Connecting Cables | 200/230 micron HCS (Hard Clad Silica) Versalink V-System Lucent Technologies, Specialty Fibers Technology Division |
| Maximum Cable Length | 300 meters with no more than one splice or one adapter |
| Minimum Cable Length | 1 meter |
| Minimum inside bend radius | 25.4mm (1 in.) Any bends with a shorter inside radius can permanently damage the fiber optic cable. Signal attenuation increases with decreased inside bend radii. |
| Operating Wavelength | 650 nm (Red) |
| Data Rate | 5 Mbps |
| Maximum Node Count | 10 - Daisy Chain, 256 - Star Configuration |

A

- AC Supply
 - Source **1-4**
 - Unbalanced **1-4**
 - Ungrounded **1-4**
- AC Supply Source Consideration **1-4**
- Access
 - Tap **1-11**
- Access Panel **1-10**
- Ambient Temperature **1-3**
- Application Notes **C-1**
- Armored Cable **1-8**
- Assisted Start-Up **2-5**
- ATEX Applications **J-1**
 - Drive Hardware Configuration **J-4**
 - Drive Wiring **J-2**
 - Motor Requirements **J-1**
- Auxiliary Power Supply **1-21, A-31**

B

- Before Applying Power **2-1**
- Bipolar Inputs **1-19**
- Bottom Plate Removal **1-9**
- Brake Resistor **1-15**

C

- Cable **1-9**
- Cable Entry Plate
 - Removal **1-9**
 - SHLD Terminal **1-6**
- Cable Length
 - Motor **1-9**
- Cable Trays **1-9**
- Cables, Power
 - Armored **1-8**
 - Insulation **1-7**
 - Separation **1-7**
 - Shielded **1-7, 1-8**
 - Type **1-7**
 - Unshielded **1-7, 1-8**
- Capacitors **1-17**
- CE Conformity **1-29**
- Checklist, Start-Up **2-1**
- Circuit Breaker Ratings **A-7**
- Circuitry **1-22**

- Class 1 LED Product **P-4**
- Clear
 - Faults Manually **4-4**
- Clearances
 - Mounting **1-3**
- Clearing Faults **4-4**
- Command Word
 - Logic **A-5**
- Common Mode Capacitors **1-17**
- Common Mode Interference **1-19**
- Common Start-Up Faults **2-5**
- Communication
 - Masks & Owners **3-12**
- Communications
 - Programmable Controller Configurations **A-5**
- Compatible Motors
 - Thermistor **A-30**
- Conduit **1-9**
- Conformity
 - CE **1-29**
- Contactors
 - Input/Output **1-16**
- Control Block Diagrams **B-1**
- Control Wire **1-19**
- Controller
 - DriveLogix **P-2**
- Conventions **P-3**
- Cooling Fan Voltage **1-10**
- Copycat **D-4**
- Cover
 - Opening **1-2**
- Covers
 - Removing **1-2**

D

- Data, Saving **D-4**
- Defaults, Resetting to **D-4**
- Diagnostic Data, Viewing **D-4**
- Distribution Systems **1-17**
 - Unbalanced **1-4**
 - Ungrounded **1-4**
- Documentation **P-1**
- DPI Communication Configurations **A-5**
- Drive Frame Sizes **P-3**

- Drive Ratings **A-8**
- Drive Status **4-1**
- Drive Status Indicator **2-4, 4-2**
- DriveLogix Controller **P-2**
- Drives Support **P-2**
- Dynamic Brake Resistor **1-15**
- Dynamic Control
 - Configuration **3-5**

E

- Electrostatic Discharge **P-4**
- EMC
 - Directive **1-30**
- EMI/RFI Filter Grounding, RFI Filter **1-6**
- Enclosure Rating **1-3**
- Encoders **H-2**
- ESD **P-4**

F

- Factory Defaults, Resetting to **D-4**
- Fan Voltage **1-10**
- Fault
 - Non-Resettable **4-4**
- Fault Descriptions **4-5**
- Fault Queue **D-4**
- Faults
 - Common
 - Start-Up **2-5**
 - Manually Clear **4-4**
 - Manually Clearing **4-4**
- Faults and Alarms **4-4**
- Feedback Option
 - Resolver **G-1**
- Fiber Optic Cable Assembly Specification **K-2**
- Filter, RFI **1-6**
- Frame Sizes **P-3**
- Fuse & Circuit Breaker Ratings **A-7**
- Fuse Ratings **A-8**
- Fuse Size **A-7**
- Fuse Type **A-7**

G

- General Precautions **P-4**

- Grounding
 - Filter **1-6**
 - Recommended Scheme **1-5**
 - Shields **1-6**
- Grounding Requirements **1-5**

H

- Hardware Enable Circuitry **1-22**
- High Resolution (Stegmann)
 - Specifications **F-1**
- High Speed Inputs **1-27**
- HIM **D-1**
 - ALT Functions **D-2**
 - External and Internal Connections **D-1**
 - External Connections **D-1**
 - Internal Connections **D-1**
 - LCD Display Elements **D-2**
 - Removing the HIM **D-6**
- HIM Indication **4-4**
- HIM Menu Structure **D-3, D-4**
- HIM Menus
 - Diagnostics **D-4**
 - Memory Storage **D-4**
 - Preferences **D-4**
- Hi-Resolution Encoder Feedback Option
 - PowerFlex 700S **F-1**

I

- I/O Configuration Settings
 - Main Control Board **1-28**
- I/O Terminals
 - Wiring
 - Main Control Board **1-20**
- I/O Wiring **1-19**
- Indicator
 - Drive Status **2-4, 4-2**
- Input Phase Selection **1-10**
- Input Power Conditioning **1-5**
- Input/Output Contactors
 - Using **1-16**
- Inputs
 - High Speed **1-27**
- Inputs & Outputs
 - Analog Inputs **3-13**
- Installation/Wiring
 - Chapter 1 **1-1**

J

Jumper **1-17**
 Location **1-18**
 Jumper Removal **1-17**

L

LCD HIM
 Menus **D-4**
 LED
 Class 1 **P-4**
 LED Indications **4-2**
 Line Type **1-10**
 Linear Sensors
 Temposonics **H-1**
 Location
 Power Terminal Block **1-13**
 Logic Command Word **A-5**
 Logic Status Word **A-6**
 Low Voltage Directive **1-29**

M

Main Control Board
 Wiring
 I/O Terminals **1-20**
 Main Control Board I/O Configuration
 Settings **1-28**
 Manual Conventions **P-3**
 Manually Clearing Faults **4-4**
 MDI **H-1**
 Recommended Cables **H-2**
 Specifications **H-1**
 Support Linear Sensors **H-1**
 Supported Rotary Encoders **H-2**
 Menu Structure, HIM **D-4**
 Mode Capacitors **1-17**
 Monitor
 Metering **3-3**
 Motor **1-9**
 Motor Cable Lengths **1-9**
 Motor Control
 Motor Data **3-4**
 Motor Control Mode **C-2**
 Field Oriented Control **C-3**
 Permanent Magnet Control **C-4**
 Volts/Hertz Control **C-4**
 Motor Ratings **A-30**

Mounting
 Clearances **1-3**
 MOV **1-4**
 MOVs **1-17**
 Multi-Device Interface Option Card **H-1**

N

National Codes and standards **1-7**

O

Opening
 Cover **1-2**
 Opening the Cover **1-2**
 Operating Temperature **1-3**
 Operating Temperatures **1-3**
 Operator Interface **D-5**
 Option Card **E-1, G-1**
 MDI **H-1**
 Resolver **G-1**
 Output Devices **A-7**

P

Parameter
 By Name **3-117**
 Changing/Editing **D-5**
 Data **3-15**
 Linear List Format **3-15**
 Viewing **D-5**
 Parameters **3-1**
 About **3-1**
 Cross Reference **3-117**
 Organization **3-3**
 Programming **3-1**
 Parameters, Groups
 Communication **3-4**
 Dynamic Control **3-3**
 Inputs & Outputs **3-4**
 Monitor **3-3**
 Motor Control **3-3**
 Position Control **3-4**
 Process Control **3-3**
 Speed Control **3-3**
 Speed/Posit Fdbk **3-4**
 Torque Control **3-3**
 User Functions **3-4**
 Utility **3-4**
 PE **1-5**

- Permanent Magnet Motor Specifications **I-1**
- Permanent Magnet Motors
 - Compatible Motors **I-1**
 - Motor Name Plate and Rating Specifications **I-1**
- Phase Selection
 - Input **1-10**
- Position Control
 - Position Config **3-9**
- Power **1-9**
- Power Conditioning, Input **1-5**
- Power Supply
 - Auxiliary **1-21, A-31**
- Power Terminal Block **1-9, 1-13**
 - Location **1-13**
- Power Wiring **1-7**
- Powering Up the Drive **2-1**
- Precautions **P-4**
- Preferences, Setting **D-4**
- Process Control
 - Regulator **3-8**
- Programmable Controller Configurations **A-5**

R

- RCD
 - Residual Current Detector **1-4**
- Recommended **1-19, F-3**
- Recommended Cables
 - Cables **F-3**
- Recommended Documentation **P-1**
- Recommended Grounding Scheme **1-5**
- Reflected Wave **1-8**
- Removal **1-10**
 - Access Panel **1-10**
- Removing the Cassette
 - Cassette
 - Removal **1-2**
- Removing the Side Covers **1-2**
- Reset to Defaults **D-4**
- Residual Current Detector **1-4**
- Resistor
 - Brake **1-15**
- Resolver **E-1, G-1**

- Resolver Feedback
 - Specifications **G-1**
 - Wiring **G-3**
- Resolver Feedback Option Card **E-1, G-1**
- Rotary
 - Stegmann **H-2**
- Rotary Encoders
 - Stegmann **H-2**
- Run Inhibit
 - Common Causes
 - Run Inhibit **2-4, 4-3**

S

- Saving Data **D-4**
- Scheme
 - Recommended Grounding **1-5**
- Setting Preferences **D-4**
- Shielded Cables
 - Power **1-8**
- SHLD Terminal **1-6**
- Side Covers
 - Removing **1-2**
- Signal Wire **1-19**
- Sinking Input/Output **1-26**
- Sourcing Input/Output **1-26**
- Spare Connectors **E-1, G-1**
- Specifications **1-13, A-1**
- Speed Control
 - Reference **3-6**
- Speed/Posit Fdbk
 - Feedback Config **3-10**
- Start-Up **2-1**
 - Assisted **2-5**
 - Checklist **2-1**
 - Faults **2-5**
- Status Indicator **2-4, 4-2**
- Status Word
 - Logic **A-6**
- Stegmann High Resolution **F-1**
 - Support Encoders **F-1**
- Stegmann Hi-Resolution Specifications **F-1**
- Supplemental Information **A-1**
- Supply Source **1-4**
- Support **P-2**
- Surrounding Air **1-3**
 - Operating Temperatures **1-3**

SynchLink **K-1**

SynchLink Cables and Accessories **K-2**

T

Tap Access **1-11**

TB1 - Row B (Bottom) Terminals **1-26**

TB2 - Row T (Top) Terminals **1-26**

Technical Support **P-2**

Terminal Block **1-9**

Location **1-13**

Specification **1-13**

Wire Size

Power **1-12**

Thermistor Ratings **A-30**

THWN

THHN **1-8**

Torque Control

Torque **3-7**

Troubleshooting **4-1**

Typical Jumper Locations **1-18**

U

Unbalanced/Ungrounded Supply **1-4**

Ungrounded Distribution Systems **1-17**

Unshielded Power Cables **1-8**

User Functions

Param & Config **3-14**

User Sets **D-4**

Utility

Drive Memory **3-11**

V

Viewing and Changing Parameters **D-5**

Voltage

Low Voltage **1-29**

W

Wire

Signal **1-19**

Wiring

Cable Entry Plate Removal **1-9**

I/O **1-19**

Main Control Board **1-20**

Power **1-7**

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Allen-Bradley

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User Manual